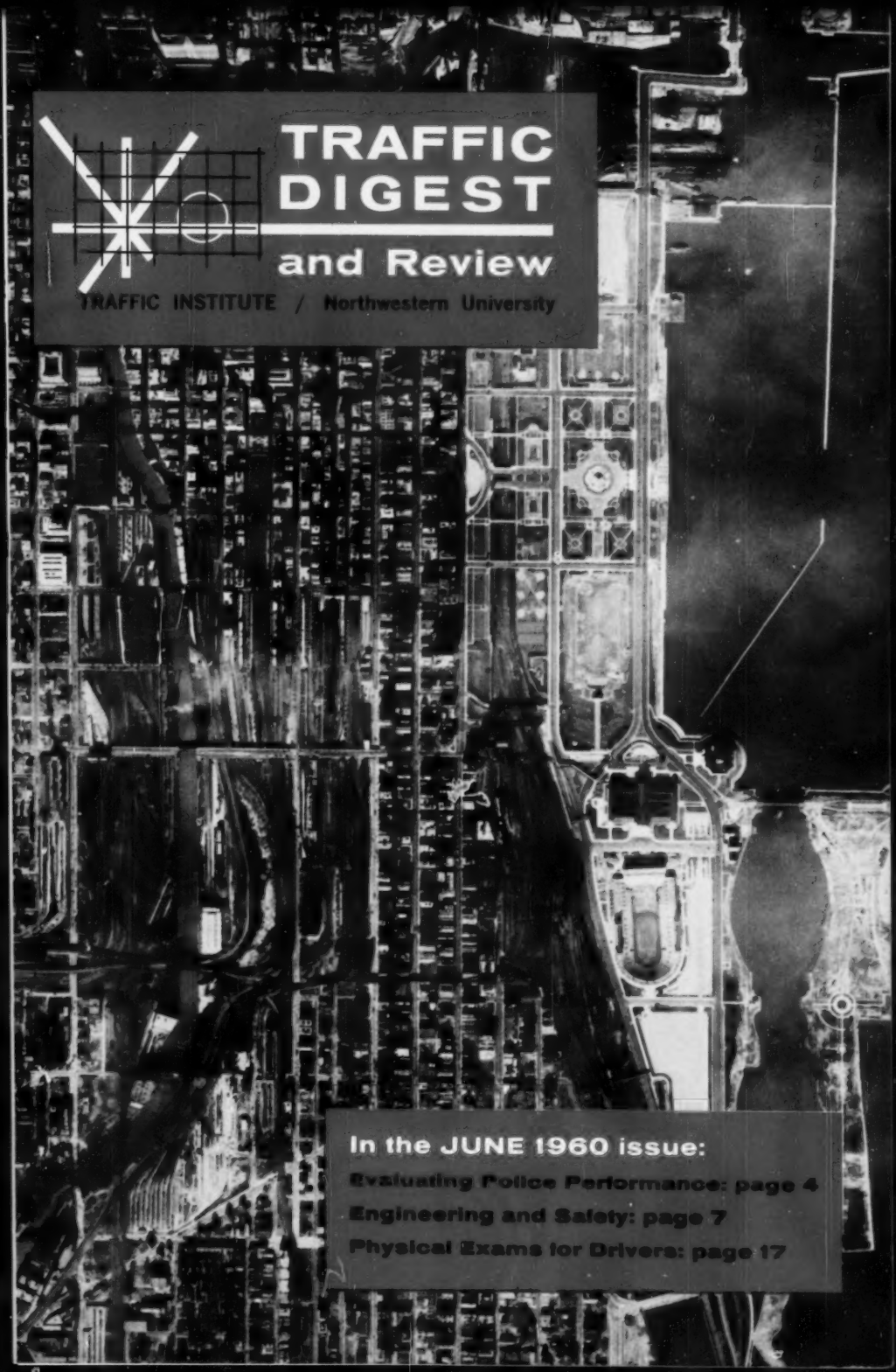
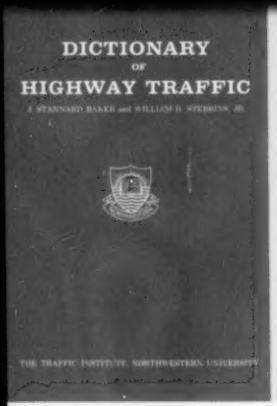


# TRAFFIC DIGEST and Review

TRAFFIC INSTITUTE / Northwestern University

In the JUNE 1960 issue:

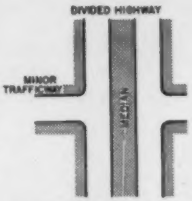
Evaluating Police Performance: page 4
Engineering and Safety: page 7
Physical Exams for Drivers: page 17




**intercepted crossroad** (21) A crossroad at an intersection where a median strip on the major traffic-way continues through the intersection, thus barring direct crossing by vehicles on the crossroad.

**interchange** (2, 19, 3, 18) A system in conjunction with a grade separation or *grade separations* of interconnecting *roadways* providing for the interchange of traffic between two or more *roadways* or *highways* on different levels.

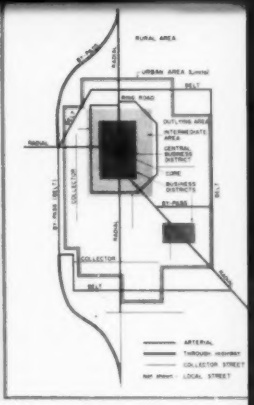
Source **3**: "A(n) (intersection) [junction] grade separated with one or more turning *roadways* for travel between (intersection) [junction] legs."




INTERCEPTED CROSSROAD

Source **18**: "A system of interconnecting *roadways* with a grade separation or grade separations providing for the interchange of traffic between two or more roadways or highways."

The definitions are not in conflict. Interchanges must have one or more *grade separations* and *roads* connecting the two levels.

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## By J. Stannard Baker and William R. Stebbins, Jr.

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## Briefly...

**THE PLYMOUTH** division of Chrysler Corporation has announced that it will provide free seat belts on all Plymouths ordered by dealers for driver education use. In announcing the plan, Plymouth describes it as a "move to start young drivers on the road to greater safety awareness." The Ford Motor Company began equipping cars for driver education with free seat belts in 1957. Both Ford and Plymouth allow special dealer discounts on cars to be made available for driver education in high schools.

**WOMEN IMPROVE** steadily as safe drivers through their first 17 years of driving experience, according to a five-year study at Iowa State College. Men were found to show little improvement until after six years of driving. The study also showed that men drive most at ages 25 through 27, averaging 13,000 miles a year. Women drive most at higher ages and average 5,000 miles a year between the ages of 50 and 55.

**CALIFORNIA EMPLOYEES** driving state-owned cars have been ordered to take a safe-driving course by June 30, 1961. The program, estimated to cost between $160,000 and $200,000, is expected to cut the state's employee traffic accident costs by 35 percent.

**STANDARDS** for city police and county sheriffs have been set by a joint state-local commission in California, the Council of State Governments reports. When law enforcement officers meet the standards—which cover physical, mental and moral fitness—state subsidies will be given to their departments to cover some administrative and training costs. The standard-setting commission is composed of the state Attorney General, five city and county law enforcement officers,

*(Continued on page 3)*


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Aerial view of Chicago, Illinois, street pattern south of downtown "Loop" section.



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Editorial

# A COMPASS IN THE WILDERNESS

THE SPECULATION is ventured from time to time that formal training in the area of motor vehicle traffic may be a little too academic, that it may even have taken on the character of an ivory tower. The implication is that such training is largely concentrated on abstract principles and as a result may have lost touch with practical problems as they must be faced in everyday traffic operations.

If one were to eavesdrop on a class in session at the Traffic Institute, for example, he would immediately recognize the unrealistic nature of such speculation. He might very well hear the instructor asking the members of the class to list the problems they find most difficult to handle in their home organizations. Consider a few of the responses:

"I sincerely believe the most pressing problem . . . is the need for thorough, adequate and unequivocal interpretation of the accident prevention program by (supervisory staff)."

"My most pressing problem is proper reporting of all motor vehicle accidents and better investigation of . . . accidents."

". . . to create an even flow of traffic during rush hour periods."

"(Improvement in) . . . traffic court procedures . . ."

". . . training supervisors (our accident investigators) not to jump to conclusions during their investigation of accidents but to take time to get the early and mediate causes as well as direct causes."

Do these sound familiar? As anyone acquainted with the Institute will testify, these are precisely the problems intended to be solved by application of the "abstract principles" propounded in Institute training.

Far from being an ivory tower, the Traffic Institute is a focal point of most of the problems encountered in traffic and traffic safety. It represents the cumulative reservoir of twenty-five years of practical experience in the traffic field.

The training program is a direct reflection of this accumulated experience. It is designed to permit the new student to profit by the mistakes of others—literally thousands. The real predecessors of Institute students are not only those men who actually attended courses at the Institute, but also every man who ever coped with a traffic problem and communicated his solution to the Institute.

This communication encompasses correspondence, discussion at hundreds of meetings, conventions, conferences and seminars, in addition to thousands of direct contacts with the Institute's men out in the field.

It is certainly true that the emphasis is given to administrative-level instruction at the Traffic Institute. A sensible person would hesitate to cross an unfamiliar and perhaps uncharted forest without taking along a compass. Traffic activity is much like wandering around in a dense forest unless known and established guides are followed. The effectiveness of *operational-level* activities depends upon such "abstract principles" as: efficient methods for the assignment and evaluation of personnel, selective traffic law enforcement, effective accident investigation, command responsibilities in traffic administration, and many others.

When a man chosen for Institute-type training is able to anticipate the kinds of difficulties he will have in organizing and implementing a traffic program *after* he has completed the necessary training, then the true objectives of that training will have been achieved.

To put it most simply: the final examination for formal traffic training is not taken on the day of the classroom quiz; rather it is given when the student returns home and is again faced with the challenge of carrying out a traffic program in his own department. ★

## Briefly . . .

*(Continued from page 1)*

and four elected or top administrative officials of city and county governments.

**THREE NEW** appointments to the board of directors of the Auto Industries Highway Safety Committee have been announced by the board chairman, Charles C. Freed. The three appointees are Birkett L. Williams, president of the National Automobile Dealers Association, James S. Morrison, president of the National Tire Dealers and Retreaders Association, and Leslie L. Wilkinson, first vice president of NTDRA.

**A NEW ACCIDENT** analysis service has been instituted by the accident prevention department of the Association of Casualty and Surety Companies as a safety aid to motor vehicle fleet operators. Dealing exclusively with accident investigation reports from the Interstate Commerce Commission, the service consists of brief but detailed analyses of major accidents involving interstate motor carriers. Each accident digest is a carefully prepared summary of the official investigation report of the ICC.

**A TROPICAL** vehicle safety-check program will take place in the spring on the Pacific island of Guam, according to *Tradewinds*, a publication of the U. S. Navy Public Works Center Safety Division. The standard ten-point safety check will be conducted on the island by the Government of Guam Department of Public Safety, the Armed Forces Police and the U. S. Naval Station Security Division. Guam, which is more than 5,000 miles west of San Francisco, can claim the distinction of conducting the most remote vehicle safety check since the program began.

**THE NATIONAL** Interstate Highway system has 6,862 miles open to traffic, according to a recent compilation by the American Automobile Association's National Touring Department. Representing a one-year increase of 1,647 miles, the figure includes turnpikes and freeways incorporated into the system as well as newly-constructed highways.


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# EVALUATING PERFORMANCE OF

**Research conducted by behavior scientists suggests a criterion for measuring the quality of traffic law enforcement activity**

**BY KENNETH R. HAMMOND, Director**
**Behavior Research Laboratory**
**University of Colorado**

THE SUCCESSFUL solution to the problem of selecting state highway patrolmen is dependent upon the development of a good criterion for evaluating performance of the men selected. Without a meaningful method of evaluating performance, research on selection can hardly proceed. Indeed, a good case could be made for the argument that not only has *research* on selection procedures been brought to a standstill, but that *present methods* are without foundation. For without a criterion for evaluating performance, how can it be demonstrated that present methods actually work? Do present methods reject more potentially good patrolmen than potentially poor ones? No one knows, and worse, no one can find out; for until a good method for evaluating the performance of highway patrolmen is developed and put into practice, there is no means by which one can discover whether a given selection procedure does more good than harm.

Present criteria such as the merit rating, longevity, and mere volume of activity (when recorded) all leave a great deal to be desired. The deficiencies of merit rating are obvious and have been elaborated upon frequently and sufficiently. Longevity, although occasionally useful, does not provide the answer to the crucial question — do the *good* men stay? Volume, or amount of work done, possesses the virtue of objectivity, but suffers the deficiency of being a normative or relative measure. That is, though it can be determined that Officer A does more

# STATE HIGHWAY PATROLMEN

work than Officer B, there is no assurance that Officer A's amount of work is what it should be. The work of both may be sub-standard. Equally if not more important is the fact that the measurement of quantity of work always begs the question of *quality*. As in the case of longevity, amount of work will constitute some information, but it does not include the essential element of a highway patrolman's performance. The fundamental question is not "how much" is he doing, rather it is, is he doing the things he should be doing, and is he doing them in the correct proportion? In short, what is the "quality" of his work?

The difficulty of answering this question is obvious, and becomes increasingly so when one realizes that a highway patrolman is alone most of the time. The vast majority of a patrolman's activities is not observed by his supervisors. Any answer to questions concerning the quality of the patrolman's work must, therefore, come about through an analysis of records. Although records suffer the disadvantage of being indirect, they have the advantage of being objective. Fortunately, during the course of a personnel research program with the Colorado State Patrol, it was discovered that the excellent record system of the patrol provided data suitable to the analysis of quality.

Our study of the problem began in this way. First, we raised the question of the fundamental purpose of the state patrolman's work. The answer to this question was a direct one: to prevent accidents on the highway through the enforcement of the laws pertaining to vehicular and pedestrian traffic. A highway patrolman enforces the law and arrests violators in order to prevent acci-

AUTHOR'S NOTE: The writer is indebted to Captain Duane Handrick, Chief Personnel Officer of the Colorado State Patrol for his splendid cooperation and assistance in carrying out this study, and to the many students, psychologists, and State Patrol Officers who participated in it. The research was supported by a grant from the James McKean Cattell Foundation and the Graduate School of the University of Colorado. This paper is Report No. 10 of the Behavior Research Laboratory of the University of Colorado.

dents. And, of course, laws are written with the intent of preventing accidents. This much is simple, but fundamental.[1]

Our next step was to discover the frequency with which various violations of the law are related to accidents. Thus, for example, more accidents are related to speeding than to improper parking. The state patrol records provided ample data which shows that there exists a definite order in which accidents are related to violations, and that this order is stable both geographically and over time. The various violations were grouped in five categories and ranked — rank no. 1 indicating the category most frequently related to accidents.

**Rank** **Category**

1. (A.) Speeding, improper turning, careless driving, reckless driving;
2. (B.) Wrong side of the road, taking the right-of-way (vehicle);
3. (C.) Following too closely, improper passing, defective vehicle, drunk driving;
4. (D.) Failure to heed a warning sign, improper parking, hit and run, failure to heed a stop sign, improper lights, taking right-of-way (pedestrian), pedestrian violation;
5. (E.) Registration or driver's license violation, license suspension, unusual loads, public utility code violation, and miscellaneous.

Category E, of course, lists violations which have no obvious causal relation with accidents.

The next step was made possible by the state patrol's meticulous records of every patrolman's daily activities. Because these daily activity records were available, it was possible to discover the percentage of each patrolman's activity that was devoted to each of the categories listed above. Thus, if Officer A issued a total of 100 summons or penalty assessments, 40 percent of them might be related to Category A, 30 percent to Category B, 15 percent to Category C, 10 percent to Category D, and 5 percent to Category E.

If we were to rank these activity categories in terms of "greatest activity" to "least activity," we would find that the rank order of Patrolman A's *activities* matched perfectly the "rank order" of accident-related *violations*. In short, by "rank ordering" a patrolman's activities, it becomes possible to compute a rank-order correlation between the categories of accident-related violations (categories A through E) and the categories of a patrolman's activities. This was done for a group of 20 men who had been on the patrol for 30 months. Surprisingly, the correlations ran from a negative .41 to a positive .32.

**Activities Related to Categories**

A negative rank-order correlation, of course, indicates that a patrolman's activities are *inversely* related to accident prevention. If a majority of a patrolman's activities are related to categories D or E, and a minority of his activities to categories A and B, then the majority of his activities are devoted to enforcing the law with respect to violations which have the least relationship to accidents. As a result of this distribution of activities, accidents are *not* being prevented through law enforcement. The patrolman is not doing the things he should be doing in the proper proportion. An officer with a high positive correlation, on the other hand, is doing what he should be doing — enforcing the law with respect to those violations most highly related to accidents. And, it should be noted, all patrolmen know what they should be doing for there is a direct educational effort to make them aware of what needs to be done.

The rank-order correlation between what should be done and what is actually done provides a direct measure of the quality of the patrolman's performance. It should be noted that the correlation

*(Continued on page 28)*

[1]It should be pointed out that the Colorado State Patrol is a Highway Patrol—not a State Police. A Highway Patrol is responsible only for enforcement of laws relating to the highways—it does not have general police powers.

# OBJECTIVES OF ENGINEERING IN TRAFFIC SAFETY

**Skillful planning by trained specialists can play a significant role in the reduction of accidents**

**BY GEORGE W. BARTON**
**Director of Traffic Engineering**
**The Traffic Institute**

AS HIS CONTRIBUTION to traffic safety, the engineer seeks to create an adequate, safe transportation system. Each of these three words—adequate, safe, and transportation—is deserving of emphasis. The term "transportation" is employed because it reflects the basic interest of the engineer working today in the field of traffic accident prevention.

Years ago, before the motor vehicle became such a dominant form of transportation, the engineer may have been more concerned with safety measures than with the necessity for transporting people and commodities. Vestiges of that attitude may be found in some places even today in the form of unrealistically low speed limits or needlessly obstructive stop signs.

To the engineer the term "safety" has become synonymous with efficiency. He is concerned with accidents and their causes, not alone to meet today's requirements, but also to satisfy the foreseeable needs in the coming years. Thus he has a major part to play in the planning and development of the street and highway system for the future.

There are three types of engineers that play a part in the traffic safety program. First is the automotive engineer whose mission it is to design vehicles of optimum safety and efficiency. Second is the highway engineer. It is his task to design, build, and maintain the street and highway system. The third, who has gained professional stature only in the last 25 years, is the traffic engineer. And his mission is three-fold.

Initially, his principal interest was in the operation of the existing street and highway network—the devising of measures for attaining safe and expeditious movement. Later, as he gained a knowledge of traffic behavior, he played an increasingly active part in the functional design of the highways themselves. Then more recently, as a result of his research into traffic habits, behavior, and desires, he is making an increasingly important

contribution to the planning of the highway transportation system. Particularly, in the vital field of planning, design and highway economics, it is difficult to draw a sharp line of demarcation between the highway and the traffic engineer. Desirably, they are working closely together, blending their knowledge and skill to produce the best in highway transportation.

As this discussion deals in greater detail with the role of the engineer in traffic safety, attention will be directed primarily toward the work of the highway and the traffic engineer.

**Three Approaches Open**

In his attack upon the traffic accident problem, the highway-traffic engineer has three general avenues of approach. First, he seeks to produce the best possible use of the streets and highways as they now exist. He seeks to accomplish this objective at no cost or at minimum cost. The tools he uses are traffic regulations, circulation systems, and control devices such as signs, signals, and markings. Second, as he exhausts the potentialities of traffic operating techniques, he proceeds to the next field of activity which is the modification or modernization of the existing system. By carefully selected additions or improvements — by construction and physical change—he endeavors to expand the usefulness of the existing system again at minimum cost.

As he looks ahead at future needs, recognizes the inescapable limitations of the existing system, and appraises economic factors, he enters upon his third area of work which is the planning and design of extensive new systems required to meet future transportation needs. My discussion will now explore the progress thus far made and the potentialities for further accomplishment in these three fields of operation, modernization, and new development.

Because there are significant differences in the traffic accident problem in urban and rural areas, as well as in the engineering approach to their solutions, the needs in urban and rural areas will be examined separately. First, let us consider the problems urban areas are facing today. At the outset, what are some of the basic characteristics of some of the serious accidents that are taking place in the cities. Predominantly, the urban accident problem is a pedestrian problem —54 per cent of the persons killed in traffic accidents last year in cities being pedestrians. Next in importance are collisions between two vehicles of various types, 27 per cent of the urban deaths resulting from this type of accident.

Finally, slightly more than 2,000 people were killed last year in single-car accidents where the vehicle hit a fixed object; ran off the road, or experienced similar trouble. When one looks at a map of accident locations, he sees another characteristic of the urban problem. While there are a number of readily identifiable locations where there are major accident concentrations, to an important degree, accidents are widely dispersed in an unpredictable random fashion.

What are the traffic operating techniques that can be used to alleviate this accident problem? The first step toward effective operations is the selection of a primary network of streets upon which movement is to be concentrated. By the very definition of the system, hit-or-miss action is avoided. When the system is known, the next task is to devise measures for producing expeditious traffic movement with minimum inefficiency and accidents.

**Techniques Available**

The traffic engineer has a number of techniques for accomplishing this purpose. He may develop special circulation systems calling for one-way movement, or for movements that reverse in accordance with traffic fluctuations at different times of day. He can recommend restrictions on curb parking to make roadway space available for moving traffic. He can use traffic control devices to regulate movement at intersections. He may provide special regulations for turning movements. Frequently he will find illumination to be an important preventive of night-time accidents. He may place limitations upon the time and place of travel of certain types of vehicles. He can devise special measures for accommodat-

ing heavy pedestrian movements. Even by such simple devices as lines painted on the pavement, he can encourage more orderly and efficient travel.

To what extent are cities today fully utilizing the skills of the traffic operating engineer? At this point, it must be emphasized that the techniques of traffic operation have been well tested and established. In this field, the need today is not for development of new techniques, but for the application of the techniques we already know. Standards for the design and application of traffic control devices have been carefully studied and adopted by official agencies. But what about application? In most of the large metropolitan cities, commendable progress has been made in the utilization of traffic engineering skills. It should not be inferred that the usefulness of this field of engineering has been exhausted in the largest cities. Constantly changing conditions demand the constant attention of the operations engineer, but the large cities for the most part, have skilled professional personnel who understand their needs and have plans for solutions within the limitation of staff and budget.

**Variable Progress**

In the medium-size cities, the degree of progress is highly variable. A few have good technical staff and a competent, active program. Many, probably a majority, are seriously unprepared to cope with the situation that exists now. Staff that is inadequate either in number or ability is barely able to cope with the most critical problems that are crying for attention and has little opportunity for the development and execution of a comprehensive and aggressive traffic engineering program.

With a few outstanding exceptions, seriously inadequate attention is being accorded to the problem of traffic operation in the smaller cities. Far too frequently, this task is being handled by personnel with no training and little understanding. Yet in the cities ranging in population from 10,000 to 100,000 there occurred 2,200 of the 9,700 urban traffic deaths. Nearly one-quarter of the serious urban accidents happened in towns that generally lack professional traffic engineering service.

As the engineer deals with problems of traffic congestion or accidents, he soon encounters situations that he cannot correct by applying traffic regulations or installing control devices. He sees critical needs for physical improvements to modify or modernize his street traffic system. He then recommends that a program of modernization be undertaken. This work may involve the creation of traffic lanes of adequate width—a 44-foot pavement to carry four traffic lanes to replace an existing 36-foot roadway, for example.

**Channelization May Help**

A narrow pavement may be widened to produce more lanes. Since bottlenecks and accident hazards are generally found at intersections, he may propose the widening and channelization of intersections. He may see the need for opening up a new route which he may accomplish by building short links to create a continuous route. He may see the necessity for creating a new route to bypass traffic around the business district. Though much of this type of work will take place within existing street rights-of-way, he may see opportunities for acquiring additional land to allow the creation of a newer, wider roadway.

In a few of the larger cities, medians or barriers are being built to physically prevent cross movement at minor intersections in order to facilitate movement and reduce accident potentials along primary arteries. In a few cases, grade separations are being built at city intersections to carry one street over the intersecting street.

To what extent are cities taking advantage of their opportunities to create a safer and more adequate street traffic system by modernization techniques such as those just described? With the exception of a few of the largest and oldest cities, much remains to be done in this direction. In many cases, only a small start has been made; there is much untapped usefulness in their street systems.

In case after case, traffic crawls along on two- or three-lane pavements centered

in rights-of-way 60 to 80 feet in width. At intersections, traffic stands blocked by a vehicle trying to make a turn. Though the pattern of travel has been changing drastically in many cities during the past 25 years, traffic often is forced to follow a system of primary streets developed years ago when the desires of traffic were much different.

So in the field of street modernization as well as traffic operation, there is much yet to be accomplished. As a general rule the amount of untapped potential in the existing street system is in inverse proportion to the size of the community.

**Problem in Rural Areas**

As we turn to an examination of the accident problem in rural areas we are immediately struck with the fact that it is here we find the vast majority of the serious accidents. Three-fourths of the motor vehicle fatalities occur on the rural highways and the nature of the rural accidents is much different from those occurring in the city.

The type that features most predominantly in fatalities are one-car accidents —accidents in which the driver runs into a fixed object such as a bridge abutment or a tree, or runs off the roadway. These types of accidents account for 46 per cent of the deaths outside the city. The bulk of the remainder, 40 per cent of the total, result from collisions between two or more motor vehicles.

The nature of the rural accidents is a clear indication that the most effective weapons against them are enforcement and engineering construction. No passing zones, for example, may be marked at locations of restricted sight distance, or stop signs can be posted at intersections, but, if there is not sufficient police supervision to insure reasonable compliance, the effectiveness of the control devices is limited. Signs can be posted to identify sharp curves, but accidents would be more effectively prevented if the curve were rebuilt with a longer radius.

Though the dominant needs in rural areas today are measures for improving driver behavior and programs for rebuilding the highways to modern standards, the field of traffic operation still has an important role to play in the rural area. Primarily, operations involve the application of traffic control devices at intersections and the providing of advice, warning, and guidance to motorists on the stretches of highway between intersections.

Intersection treatment normally includes the installation of stop and warning signs, the installation of traffic control signals where the expense is justified by the quantity of traffic, and channelization through the use of painted lines or curbs for islands. Between intersections, the task is primarily one of establishing appropriate speed limits and identifying unusually hazardous locations such as narrow bridges and blind hills or curves. As a rule, techniques of operation have been adequately researched and firmly established.

Standards for the design of devices and the conditions justifying their use have been generally agreed. One possible exception is in techniques for controlling speed. There still is a significant difference of opinion as to the proper techniques and policies to be applied in the field of speed control. Considerable study has been given to the speed vehicles are traveling on the rural highways. These studies show that average speeds are increasing year after year, but at a relatively small rate of increase. Of far greater significance than average speed is the proportion of vehicles traveling in the upper speed brackets. The proportion of vehicles traveling at more than 50 miles an hour is increasing sharply year after year, roughly doubling in the past decade.

**Speed Control Policies**

In the states where the speed question has received most serious study, several policies in the control of speed appear to be gaining acceptance.

First, there is an evident trend toward more realistic and more reasonable speed limits. Though some urban areas and fewer rural districts still are operating with speed limits materially lower than necessary, the majority is seeking reasonable regulation. To select limits that are reasonable, a growing number of states

*(Continued on page 30)*

# THE 1 DRIVER LICENSE PLAN

**Despite some minor problems, it is workable and worthwhile**

**BY GLENN V. CARMICHAEL**

**Assistant Director of Training**

**The Traffic Institute**

NUMEROUS states are adopting the one license plan in an effort to exert greater driver control through licensing. The purpose of the plan is to prevent a driver from carrying more than one license certificate at a time.

The Uniform Vehicle Code (6.101) provides that no person shall receive an operator's license unless and until he surrenders to the department all valid operator's licenses in his possession issued to him by other jurisdictions. All surrendered licenses shall be returned by the department to the issuing department together with information that the licensee is now licensed in new jurisdictions. No person shall be permitted to have more than one valid operator's license at any time.

Not only does the one license plan restrict a driver to the single license certificate, but it also enables all of the driver's subsequent licensing history to be placed in a single state's driver license file. Thus, at the time of application, when the applicant is asked whether he has been previously licensed in another state and so indicates that he has, the new state writes to the previous state and requests a transcript of the previous record.

Section 1.106 of the Uniform Vehicle Code says: "Whenever application is received from a person previously licensed in another jurisdiction, the department shall request copies of operator's record from such other jurisdiction. When received, the operator's record shall become a part of the operator's record in this state with the same force and effect as though entered on the operator's in this state in the original incident."

Not all problems have been worked out by license administrators and legislators. For example, in some states the administrator has been advised by his attorney general that the license examiner has no authority to pick up the license certificate issued by another state.

Another problem arises when the applicant writes back to the state of first instance requesting his license be returned. Some state officials say they have no grounds for retaining the license even though the driver is no longer a resident.

The question of what constitutes the definition of resident has not been clearly answered. Thus, when the applicant asks the license examiner for an application, the examiner may not be able to ascertain the applicant's status as a resident. If the applicant lives on one side of a state border but commutes daily to the other side to work, in which state must the applicant be licensed? Local police frequently rule that the driver must carry a license certificate which matches the vehicle registration by state, or that the applicant must be licensed by the state in which most of his driving is done, or by the state in which he is employed.

Despite these problems, license officials report that the plan works. Long-wanted persons have been turned up through the reporting of a change in licensing when the driver's record is requested.

Other drivers are surprised that the state is showing such interest in their past driving history and—we hope—will pay more attention to their future driving record when they know that the licensing authority is truly concerned with their performance to the extent of compiling a central record of it.

When all states follow the one license plan, police will have less difficulty with problem drivers. When asked for his driver's license, the operator will not be able to flash a handful and ask, "Which one do you want?" ★

# DENVER'S DRIVER IMPROV

**Instruction is provided under the auspices of the court without charge to students or taxpayers**

**BY ROBERT V. HUDSON, TD&R Staff Writer**

THERE ARE some one thousand better motorists in Denver, Colorado, today. And the improvement of their driving skills cost neither the city nor themselves one penny. They are graduates of Denver's unique budgetless Driver Improvement School which is "dedicated to the preservation of our most precious natural resource—human lives."

The school was founded on March 3, 1959, by Municipal Judge Sherman G. Finesilver, who still directs it, under the auspices of the Denver Municipal Court. The school had been several years in its "gestation" period.

In the Denver program are embodied the most successful, effective, and modern features of driver improvement schools throughout the country. It is a practical, fundamental program for Denver motorists and motorists-to-be.

"To improve driving skills, knowledge of traffic laws, and attitudes of motorists, and thus help alleviate the rising accident toll in Denver and Colorado" is the school's goal.

The Driver Improvement School operates without a budget, Judge Finesilver points out. There is no cost to Denver taxpayers or students. Judge Finesilver, instructors, and clerical personnel volunteer their services. Members of the Junior Chamber of Commerce do the clerical work and test grading, eliminating need for a full-time paid secretary.

Other agencies which have cooperated in the school are the Metropolitan Safety Council, Colorado Highway Safety Council, Denver Police Department, Colorado State Patrol, Traffic Engineering Department of the City and County of Denver, Motor Vehicle Department of the Department of Revenue of the State of Colorado, and the Opportunity School of the Denver public schools.

Initially, classes were held at East High School, but more facilities were needed so classes were transferred to Opportunity School. During the first year classes were conducted two nights weekly. There were more than 120 sessions, each consisting of two hours or more.

The ages of students ranged from 13 to 85 years. Of the estimated 1,000 students the first year, 100 were violators of non-aggravated cases referred to the school by Denver Municipal Judges, 500 were new drivers, and 400 were licensed drivers who wanted to improve their driving.

Fifty-five students were new Americans; interpreters helped them become licensed drivers. At least 100 students were new residents of Denver and Colorado who desired a course on city and state laws.

Nearly a third of the students were female. An increasing number of family units—husbands and wives, one or both parents and a child or children—attended the Driver Improvement School.

Registration, handled by Opportunity School, has increased each month. There now is a waiting list of applicants for the course.

The school consists of four successive Tuesday or Wednesday evening sessions and one Saturday morning testing session. Day classes are being considered.

Subjects are Techniques of Driving,

# EMENT SCHOOL

Winter and Mountain Driving, Safe Driving Practices, Accident Causes, How to Prevent Potential Accidents, and State and City Motor Vehicle Laws Review. A driver simulator is used. There is no behind-the-wheel training. Physical demonstrations and visual aids are used. A traffic safety kit, including traffic safety literature, is distributed to each student.

The comprehensive test includes 50 questions on traffic signs, signals, and laws. Psycho-physical aspects include testing of reaction ability, night vision, depth perception, visual acuity, color vision, and hearing.

Beginning with the 1960 classes, students satisfactorily completing the school program and passing the written test have been exempt from the written examination for the Colorado operator's license. In approving the Denver Driver Improvement School, Robert Theobold, state driver licensing director, stated:

"I feel that the establishment of courses of instruction of driver improvement throughout the state similar to the Denver Driver Improvement School would most certainly aid our traffic safety program."

Proponents of the Driver Improvement School feel that it fills a general and pressing need in the community for more thorough and effective driver education. In addition to educating and re-educating motorists, the school provides a more satisfactory way of handling types of traffic violators previously handled solely through punitive measures.

A periodic check of graduates from the Denver Improvement School will be made in the traffic-offense records of Denver motorists and the records of Colorado's Motor Vehicle Department. Many cities having well-operated driving schools with qualified instructors indicate that less than 5 per cent of their students become repeat violators after completing the course. Comparative studies in cities without such schools indicate that at least 15 to 20 per cent of first offenders come to court as repeat violators, Judge Finesilver said.

Judge Finesilver made the following projections for the Denver Driver Improvement School:

1. The impetus gained through the school will set the pattern for similar adult traffic safety programs and schools throughout the state.

2. The school will serve as a "touchstone" in Denver and throughout Colorado for increased driver education at all age levels.

3. The school's attendance will increase; potentially some 5,000 persons will attend annually.

4. Denver municipal judges will refer more traffic offenders of non-aggravated cases, on an individual basis, to the school.

5. There will be exploration into making the facilities and program of the Denver Driver Improvement School available on a voluntary basis to employees of the City and County of Denver who drive city-owned vehicles.

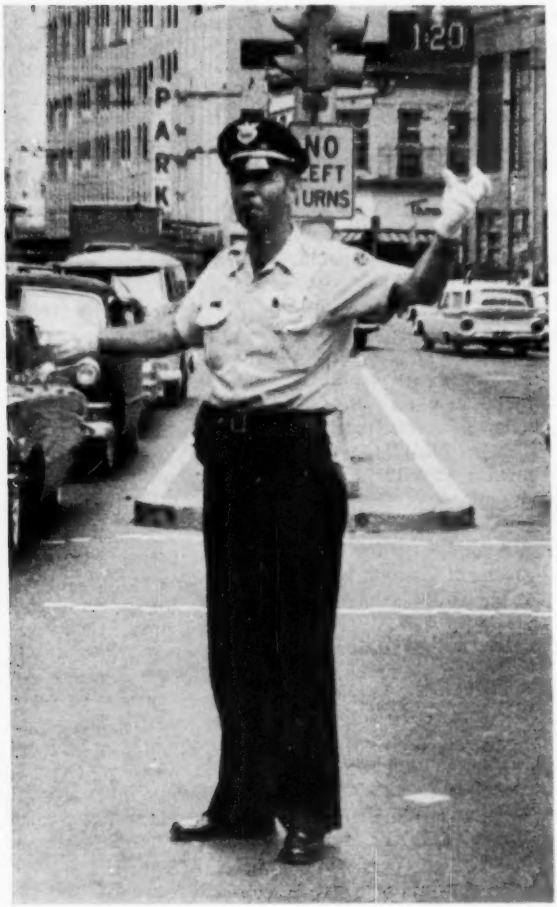
**Success Due to Agencies**

Judge Finesilver attributes the outstanding progress of the school to the participating agencies and, especially, to the instructors who present a positive educational approach to the crucial problem of traffic safety. The instructors, like everyone else connected with the school, serve without pay and in addition to their regular responsibilities.

The compensation for the people connected with the Denver Driver Improvement School has been a safer city and state in which to live. They know that persons who otherwise might be injured or killed in traffic, or might injure or kill others, are better equipped to drive in a more informed, careful, diligent, and humane manner. ★

# MANPOWER FOR INTERSECTION POINT CONTROL

**Atlanta solved the problem by employing its own trained police officers and paying them overtime**



**BY HERBERT T. JENKINS**
**Chief of Police**
**Atlanta, Georgia**

TRAFFIC congestion in urban areas is a healthy sign of growth and progress. Yet it can be a two-edged sword. Unless controlled and alleviated, traffic can strangle any metropolitan section with a resulting loss in property values.

Atlanta was a good example of this problem. Like Topsy in *Uncle Tom's Cabin*, our street structure "just grew". Our city dug itself out of the ashes following the War Between the States and rebuilt around historic Five Points.

Paths that meandered here and there became city streets. There was no traffic problem in the horse and buggy days and, unfortunately, there was nothing to indicate to the city fathers the problem that would arise with the gasoline era.

Downtown property values increased to the point where it was financially impossible to greatly alter the street layout. Down through the years, those entrusted with the city government eliminated bottlenecks here and there as funds became available.

### Faced Congestion Problem

Only after the last war—when the central downtown area suddenly became the hub of a million population—did we begin to think seriously in terms of traffic congestion and what it meant to our community.

Conservative estimates are that a half million persons enter and leave the downtown area daily. Cordon counts shows a daily ingress and egress of 250,000 vehicles.

We adopted the standard measures for dealing with heavy traffic. We eliminated on-street parking in the central area as fast as off-street facilities became available. We developed a system of one-way streets and eliminated left-hand turns at busier intersections. Our traffic light control system was modernized until it became 95 per cent progressive.

A north-south six-lane bypass that skirts the central business district opened up an ideal path for vehicles traveling across town.

We went to one-man accident investigation cars in order to provide better coverage and increase enforcement.

Then sections of a gigantic new expressway system began to be opened. The expressway started pouring traffic at 50 miles per hour into already overcrowded streets, and traffic during the peak hours slowed to a snail's pace.

As trouble spots developed, motorcycle officers were assigned to point control on intersections. Within a few weeks the entire motorcycle squad was demobilized to work traffic. Patrol cars are unable to maneuver through heavy traffic and thus enforcement ground to a standstill at the time it was most critically needed.

### Manpower Needed

Sufficient manpower, of course, was the answer. But where were we to get it? What police department ever has sufficient manpower to meet the demands upon it? We did not have the manpower and there was no possible way of obtaining it in the foreseeable future.

So, we took a cue from private industry. We felt that a man trained for a specific job was best qualified to do that job. We advanced the idea of employing trained police officers on an overtime basis during the peak traffic hours.

By assigning overtime men on point control, we could relieve motorcycle officers and permit them to return to field enforcement.

In September, 1959, the mayor and board of aldermen approved an appropriation to employ 40 officers on an overtime basis. Twenty were assigned to work from 7:30 to 9:30 a.m. and 20 were placed on overtime duty from 4:30 to 6:30 p.m.

The men were paid at the rate of $2 per hour for the actual time worked. They were not needed on Saturdays and Sundays. Thus we were able to get the services of a fully trained officer at the time he was most needed Monday through Friday for $20 a week.

Putting the new program into effect was no problem. The men already were schooled in traffic control by means of standardized signs and signals. They simply completed their regular tour of duty,

# TRAFFIC TRAINING CALENDAR

**JULY 18-29, Accident Investigation;** University of Maryland, College Park, Md. Regional police training held in cooperation with the Traffic Institute and the International Association of Chiefs of Police.

**SEPTEMBER 12-16, Southern Region Traffic Court Conference,** University of Tennessee, Knoxville, Tenn. Held in cooperation with the Traffic Institute and the American Bar Association Traffic Court Program.

**SEPTEMBER 12-23, Traffic Law Enforcement;** University of Tennessee, Knoxville, Tenn. Southeastern regional police training held in cooperation with the Traffic Institute and the International Association of Chiefs of Police.

**SEPTEMBER 12-30, Accident Investigation—Administration and Techniques;** Traffic Institute, Evanston, Ill. How the amount and kind of information gathered at accident scenes can be improved through supervision and training. Actual procedures of scientific accident investigation and interrogation are covered.

**SEPTEMBER 15-JUNE 12, 1961, Traffic Police Administration Training Program;** Traffic Institute, Evanston. Nine month course designed to provide comprehensive professional training for law enforcement officers.

**OCTOBER 3-21, Supervision of Police Personnel;** Traffic Institute, Evanston, Ill. Covers evaluation of current supervisory practices in officer's own department; developing and improving supervisory officer's training; improving performance of supervisors.

then reported to an assigned intersection.

The men liked the idea. They had the same protection and fringe benefits working overtime as when on regular duty. Many worked extra jobs in private industry and, of course, they were not protected in that capacity.

There was a noticeable improvement in the driving habits of the general public. Motorcycle officers concentrated on lane jumpers, those making improper turns, and other allied violations that cause traffic slowdowns.

Public reception of increased enforcement was splendid. In fact, during February—a short month—we booked more than 12,000 traffic cases and out of that number we did not receive a single complaint. During February and March, motorcycle officers patrolling during peak hours booked 22.3 per cent of all cases.

There is no way to accurately measure the full results of the program, but indications thus far are most favorable.

In the first place, driver dispositions are much improved. After a hard day's work, the Atlantan of today can get into his car at the office and drive home without undue delay.

In fact, we pull one man from regular patrol cars wherever possible, and place him on intersection duty during rush hours. Virtually anywhere an Atlantan drives during the peak hours he is within sight of a point control officer.

We have also eliminated speeding during the four-hour rush period. This brought a gratifying reduction in the severity of accidents.

For instance, for the first time since the police department traffic bureau was created, we were able to go through the Christmas and New Year holiday seasons without a single traffic fatality.

There was no chargeable fatality in the 137 square miles of the city from November 28, 1959, until January 3, 1960.

Luck, you say. We wondered about that ourselves. Then, after a single fatality on January 3, we were able to go through the next 30-day period without an additional death. Our total fatalities this year stand at 15, compared with 23 for a similar period of 1959. ★

# PHYSICAL EXAMINATION OF DRIVERS IN PENNSYLVANIA

**Beginning this month the state will require a health certificate as a prerequisite for a license**

**BY DAVID L. LAWRENCE, Governor Commonwealth of Pennsylvania**

THIRTY-ONE years ago Pennsylvania banned unsafe motor vehicles from its highways by enacting a compulsory periodic motor vehicle inspection law, the first such legislation in the nation.

This year Pennsylvania embarked on another pioneering project in highway safety with periodic physical re-examinations of all its licensed drivers. It was a bold move, but one long recommended by traffic safety experts.

The American Medical Association first prepared standards of physical fitness for drivers in 1940. But, as in other states, attempts to incorporate a re-examination program into the Commonwealth's motor vehicle code met with failure in the legislature session after session.

This year, however, a new tack was taken by a formal legal opinion rendered by Attorney General Anne X. Alpern confirming the administration's authority to order the examinations under Article VI, Section 608g of the Motor Vehicle Code, which states:

> "The Secretary (of Revenue) may, in his discretion require the special examination, by such agencies as the Secretary may direct, of any applicant for learner's permit or operator's license, or of any operator, to determine incompetency, physical or mental disability or disease or any other condition which might prevent such applicant from exercising reasonable and ordinary control over a motor vehicle or tractor."

The program took form rapidly. On February 2, we announced that beginning in June, 1960 all applicants for motor vehicle operator learners' permits must submit to a physical examination as a pre-requisite to issuance of the permit. This group, new drivers and those moving into Pennsylvania from other states, totals nearly 400,000 persons annually.

The next group to be brought under the program will be drivers licensed before 1924, when no test or examination whatever was required. Today it is estimated there are about 350,000 drivers in this category. Before qualifying for their 1961 operators' licenses, these drivers will be required to furnish the Department of Revenue a physician's certificate testifying that they meet the established physical standards. In addition, applicants will submit to a vision test conducted by the state police.

Periodic re-examination of all drivers is scheduled to begin in 1962 on a staggered basic not yet completely developed. Our plan calls for the re-examination of each driver every 10 years up to the age of 60, every five years thereafter.

The minimum physical and mental standards were developed by the Pennsylvania Medical Society and State Health Secretary Charles L. Wilbar. Licenses would be denied any person afflicted with any of the following conditions:

1. Loss of both hands.

2. Neurological disorders affecting muscular control and coordination to such a noticeable degree as to prevent reasonable or ordinary control of a motor vehicle.

3. Vision of 20/70 or less in the better eye (with correction).

4. Dyspnea (obvious shortness of breath on slight exertion).

5. Fixed hypertension of 180/100 or above, accompanied by complications.

6. Neuropsychiatric disorders which cause substantial disturbances of attention, intellectual functioning, perception, reaction, coordination and personality factors.

7. Conditions causing repeated lapses of consciousness; e.g., epilepsy, narcolepsy, hysteria (applicant will be considered for license if free from such episode for a period of at least two years, with or without medication).

8. Uncontrolled (brittle) diabetes.

9. Chronic alcoholism.

10. Addiction to narcotics or habit-forming drugs.

**Effect of Standards**

What effect will the application of these standards have on Pennsylvania's more than five million licensed drivers?

It certainly will not result in wholesale withdrawal of operating privileges. But just as certainly it will remove from our highways many thousands of persons who clearly should not be driving — individuals who are a hazard to all highway users, not least of all to themselves.

We believe, and I am sure all public officials who face the facts squarely will agree, that liberal licensing requirements make it possible for thousands of potential killers to secure operating privileges every year.

We know the body and mind are subject to many serious illnesses which preclude safe, prudent operation of a motor vehicle. The state Bureau of Traffic Safety reports that last year a total of 4,364 drivers' licenses were suspended for the following reasons:

Mental illness, 1,029; convulsive seizures, 718; chronic alcoholism, 280; narcotics addiction, 364; failure to submit to, or to pass, a special re-examination, 1,784; and voluntary surrender, 189.

It must be emphasized that these suspensions came under a very limited program in which accident records and reports of relatives and police prompted a special re-examination. These examinations consisted of a statement from a physician plus, in some cases, the usual vision, law and driving test conducted by the state police.

In a sense, our new program is merely a large-scale expansion of this work which we have been doing for many years, with the difference that drivers will not be required to take a road test to demonstrate their driving ability or to submit to an oral examination on the Motor Vehicle Code.

**Suspension Not Final**

The suspension of driving privileges by the Department of Revenue is never considered final. Many individuals will be permitted to drive again when competent medical authority certifies them to be qualified. Chronic alcoholics, for example, have been eligible for restoration of driving privileges six months after completing treatment for the condition by qualified physicians, provided they continue to abstain from alcoholic beverages.

Every effort will be made to place the experience and information gained under the program at the disposal of all interested agencies. The results of every examination will be recorded on punch cards for automatic tabulation. By March 1, 1961, the Revenue Department will have on file the results of approximately 500,000 examinations, which will be carefully studied and reported.

By this step Pennsylvania removes the periodic re-examination program from the realm of theory. This theory has been so thoroughly studied and so ardently advocated we can have no doubt as to its practical value.

We do not, of course, propose periodic re-examination of drivers as a panacea for the traffic problem. But surely it is a great step forward in the treatment of the nation's most serious public health problem. ★

NOTES ON
BOOKS

# HUMAN BEHAVIOR IN DISASTERS

Review by GERALD O'CONNELL
Director of Training, The Traffic Institute

*Convergence Behavior in Disasters. Charles E. Fritz and J. H. Mathewson, Washington, D.C. National Academy of Sciences, National Research Council, 1957. 102 pp. $2.00*

THIS IS Disaster Study No. 9 of the Committee on Disaster Studies, Division of Anthropology and Psychology, National Academy of Sciences, National Research Council. It is further identified as Publication 476.

The committee was established after the surgeon generals of the Army, Navy, and Air Force requested the academy to conduct "a survey and study in the fields of scientific research and development applicable to problems which might result from disaster caused by enemy action."

**Data on Research**

The function of the committee is to aid in developing a field of scientific research on the human aspects of disaster. The committee maintains a clearinghouse on disaster research, publishes a roster of scientific personnel in the field of disaster research, and periodically issues a newsletter. With responsible officials, it advises on problems of human behavior in disaster and, from time to time, issues reports on the results of disaster research.

Disaster Study No. 9, is one of the reports on the results of such research.

A striking aspect of human behavior in disaster is the informal, spontaneous movement of people, messages and supplies toward the disaster area. This form of movement, which the authors term "Convergence Behavior," brings needed aid to many victims, but at the same time, the resultant congestion makes organization and control of the rescue and relief efforts more difficult.

By placing convergence in a broader context and making more refined and critical distinctions, the authors bring a fresh perspective to the problem. They distinguish and examine the major forms of convergence and the different motivations which impel it, and they discuss the implications of these findings for developing methods and techniques of controlling convergence.

Their findings and recommendations are of interest to disaster organization planners at each level of government and, specifically, those responsible for transportation and traffic functions. Contents include the nature of convergence, the scope of the problem, the types of convergers, methods and techniques for controlling convergence behavior, and an extensive listing of references.

**Parking Survey**

*Parking Practices on College Campuses in the United States. L. H. Csanyi. Publication No. 181, Iowa Engineering Experiment Station, Iowa State College, Ames, Iowa, 1958. 19 pp. 50c.*

Increased ownership and use of automobiles have created serious parking problems not only in every community, but also on numerous college campuses throughout the United States.

The publication contains informative data on how parking and parking problems are being handled on the campuses in the study. The availability and method of assigning parking spaces, the regulations, parking fees, student parking restrictions, fines charged violators, and a sample of the questionnaire and covering letter are included in the 19-page pamphlet. ★

**This community of 65,000 people believed its yo**
**safely and was willing to pay higher taxes to tea**

# SIOUX FALLS SAV DRIVER TRAINING

**BY DURAND C. YOUNG, Executive Secretary, Sioux Falls**

WHAT HAPPENS when a school board, faced with rising costs and public concern over tax levies, announces it may drop driver education from its high school curriculum?

In the case of Sioux Falls, South Dakota, at least, overwhelming public support for the program showed that people believe in driver education and are willing to pay the additional taxes needed to finance it.

After its regular meeting in May the Sioux Falls Board of Education announced it was considering dropping driver education. The course taught in Sioux Falls was begun about 12 years ago. It meets the "30 and 6" standards and is required for all sophomores, with very limited exceptions.

Reasons given for such a move included the cost ($32,000 this year), some feeling that another agency or agencies should assume the responsibility, and a raise in the basic minimum licensing age from 15 to 16 scheduled for July 1, 1960.

It was reported, too, that the cost of the program could be expected to zoom to $75,000 in two or three years due to the large numbers of pupils now in grade school.

The board of education's proposal immediately aroused a great deal of interest in the community of 65,000. It drew editorial support from the local newspaper, which said, ". . . The question that arises, though, is whether or not this should be done in the public schools. Parents are drivers and presumably can instruct their children in the elementary requirements . . ."

This editorial backing of the board's proposal apparently had little persuasive effect, however, since organizations and individuals began to voice their sentiments in favor of the driver education program.

Public statements were immediately issued by several groups pointing to the importance of driver education to a sound traffic safety effort in any community or state. These statements were reported by the press, radio, and television.

The Sioux Falls New Car Dealers Association, whose members supply the five automobiles without cost, pledged continued support.

The executive secretary of the State Medical Association called high school driver education the best single step for preventing highway casualties and said that adults aren't equipped to teach their children to drive.

The secretary of the South Dakota Auto Club cited studies showing the better records of trained drivers compared to untrained and said, "The new and much more rigid driver licensing law in

**n should learn how to operate an automobile**

**them**

# ES ITS SCHOOL

**afety Council**

South Dakota suggests expansion of the driver education program rather than restriction."

The Sioux Falls Safety Council called the program our "greatest hope for dealing successfully with the growing problem of man and the motor vehicle," and said that school traffic safety education is a basic part of the comprehensive program needed to reduce traffic accidents.

It is noteworthy that about one-fifth of the high school students attending driver ed courses in South Dakota are in Sioux Falls. Dropping the course in the state's largest high school, it was felt, would certainly be a blow to the progress being made throughout the state as a whole in broadening the program.

Also of interest is the fact the state legislature had just passed more important traffic safety legislation than ever before, following the most deadly year ever on South Dakota roads.

New measures included a comprehensive driver licensing law closely following the Uniform Vehicle Code, implied consent provisions as a companion to existing chemical test law, and a new speed limit.

As interest in the driver education problem grew, the Safety Council's board of directors invited representatives of other agencies to a special meeting to discuss the matter.

In addition to directing a resolution to the board of education, this group made plans to demonstrate the value of training young people to drive and to show that the citizens would support such work.

Analysis of the facts soon showed:

(1) The $75,000 annual cost estimate two or three years hence was most unrealistic. A figure around $42,000 seemed more likely.

(2) Shifting the course to the second-semester sophomore and first-semester junior level could be accomplished with practically no cutback, thus serving the student at the optimum age under the new driver license law.

The only remaining obstacle was the controversy over who should teach young people to drive — parents, schools, or other agencies.

Those who felt the parents should do the job were few in number, and it was a simple matter to point out that parents generally do not have the necessary skill for teaching proper driving; do not have and would not acquire such needed equipment as dual controls, visual aids, and other materials important to adequate training.

Parental teaching also would not result in the insurance premium reductions granted as a result of school training.

# Driver Education Hits New Peak

High school participation and student enrollment in driver education courses in the United States reached a new peak in the past school year, according to the report of the 12th Annual High School Driver Education Award Program sponsored by the Association of Casualty and Surety Companies.

"Despite the unwarranted attacks on driver education as a 'frill' course, 12,278 of the nation's public high schools offered the course and enrolled 1,338,246 students," pointed out Dr. Virgil Rogers, Dean of the College of Education, Syracuse University, who served as Chairman of a Board of Judges in the Award Program.

The Award Program is the medium recognized by the White House Conference on Highway Safety and the President's Committee for Traffic Safety as the annual measurement of driver education progress, a keystone in the national highway safety program. The report for the school year 1958-59 covered 49 states and the District of Columbia. Total figures disclosed that 63 percent of the public high schools in the United States had a driver education course and reached 67.7 percent of the eligible students.

Even more encouraging was the fact that half the public high schools of the nation offered courses meeting the highest national standards. These top courses reached over 760,000 students in the past year, a gain of approximately 27 percent over the previous record.

In no sense a "contest," the Award Program is designed to encourage and recognize states which attain and maintain driver education courses meeting national standards.

This is the final year in which the Award Program will be sponsored by the Association of Casualty and Surety Companies, the activity being taken over by the new Insurance Institute for Highway Safety, Washington, D.C.

How about other agencies? Those suggested as possibilities included the automobile dealers, the auto club and the safety council.

Experience has shown, of course, that no agency other than the schools can so effectively reach the bulk of the young people at the proper time.

In order to determine public sentiment in the matter, two questionnaires were used.

One was prepared by school authorities and sent to 1,900 families whose children had had, or would have, driver education.

Questions on this survey, and the replies received, were as follows:

1. Do you feel the school should continue the program at public expense? Yes 775 No 139
2. Should some other agency (AAA) (New Car Dealers Association) (Other) assume the responsibility? Yes 207 No 337

**Auto Club Members Queried**

The other questionnaire was sent by the South Dakota Auto Club to 1,500 Sioux Falls members. It asked, "Do you believe that Washington High School should continue to provide a complete driver education program to our Sioux Falls students?" Replies totalled 528 Yes and 34 No.

As these matters were developing, the Board of Education released several statements "clarifying its position" and giving every indication of yielding to public sentiment.

Less than a month after it all started, the school board meeting at which it had been announced that a decision concerning the fate of driver education would be made, was an anti-climax. Representatives of the safety council and other organizations, and a number of individuals, attended the meeting to reaffirm their position despite assurance by the board that this was not necessary.

Result: The course was retained.

In the final analysis, opposition to driver education simply melted in the face of public opinion. Community groups and individuals on record in favor of it included, in addition to those al-

ready mentioned, the Chamber of Commerce, Insurance Women of Sioux Falls, the Municipal Court Judge, organized labor, Associated Motor Carriers of South Dakota and many others.

With today's emphasis on better education, the need for scientific training and the clamor to eliminate frills from the curriculum, other communities may be faced with a similar problem.

But if the school board is made aware of the facts, if the public understands the value of driver education, there should be no question as to its fate.

Sound traffic safety education in the schools is a basic part of the Action Program which, reasonably applied, could reduce traffic accidents by one-half.

While enforcement, engineering, driver licensing and other basic factors are vital to safety, our greatest long-range hope for curing traffic ills rests in the creation of a nation of trained drivers.

In carrying on a public information program to stimulate action in this situation, a considerable amount of material was gathered and studied. A partial list of such information and its sources is included here as a possible help to other communities.

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# The new Evidence Handbook

BY ROBERT L. DONIGAN and EDWARD C. FISHER

**The new Evidence Handbook succeeds an earlier publication, the Evidence Handbook for Police by Franklin M. Kreml, which was published in 1943 by the Traffic Institute. It went through six big printings during the 15 years of its widespread use by law enforcement and legal authorities.**

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## Automobile industry stages smash-ups to build in protection for motorists

INFORMATION obtained in hundreds of scientifically-staged "accidents" at automotive proving grounds is giving motorists added protection on the highway.

These planned accidents, part of industry-wide safety research activities of U. S. motor vehicle manufacturers, are turning up new knowledge about the behavior of vehicle and occupants during crash impacts, according to the Automotive Safety Foundation.

Using full-scale vehicles, auto safety engineers have duplicated nearly every type of highway crash situation. Remote-controlled cars, traveling at highway speeds, have been smashed into wooden, concrete and metal barriers. Others have been rolled-over, rammed head-on or broadside by other vehicles, and even struck by a giant pendulum.

Every crash is recorded from start to finish by elaborate electronic instruments and by ultra high-speed motion picture cameras for later analysis in slow-motion.

Many of the test vehicles are manned by anthropomorphic dummies approximating humans in size, weight and movement. Carefully instrumented, they aid in determining the exact sequence of collision events and disclose any injury-producing contacts with the interior of the vehicle.

While the crash test findings are providing first-hand information on vehicle collisions, they are also proving that motor vehicles do a lot to reduce accident dangers. Engineers, once criticized

for structural damage to vehicles in accidents, are able to show that this same bending and yielding safeguards passengers by absorbing much of the abrupt shock of a crash.

Simple crash and roll-over tests were conducted by industry engineers as early as 1933. The greatest share of the work in this field, however, has been accomplished since 1953 following the development of new electronic instruments to measure and record crash information.

In addition to measuring the over-all effectiveness of vehicle safety features, the tests also provide a special proving ground for new safety devices. Some of the first tests examined various types of safety door latches under actual crash conditions and led to their adoption as standard equipment by the industry.

Crash studies also have aided in the development of recessed-hub steering wheels, automotive seat belts, better seats and seat cushion retention, improved instrument panel designs, stronger roof support pillars and more effective energy-absorbing safety padding.

Data provided by full-scale tests have enabled vehicle engineers to build laboratory equipment that can simulate conditions encountered in actual crashes. These special research facilities are used extensively for individual studies of new safety features.

Related crash testing activities in the industry have demonstrated that removal of roadside hazards, such as trees and deep ditches, with new approaches to the design of protective barriers and utility and sign poles can greatly reduce highway accidents.

Much of the information found in the crash tests has been widely distributed through the automotive industry by reports to professional societies, government agencies, safety organizations and the Vehicle Safety Committee of the Automobile Manufacturers Association.

Most of the crash testing is conducted at automotive proving grounds, but auto makers also sponsor or cooperate in similar tests by outside organizations. Many of these studies are related to the tolerance of the human body under various impact conditions. ★


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# FLORIDA PATROL COMMUNICATIONS

**Starting with a few AM receivers in 1940, the FHP has developed an extensive, modern radio and teletype network**

**BY H. N. KIRKMAN, Superintendent, Florida Highway Patrol**

FROM RAGS to riches, figuratively speaking, is the story of the Florida Highway Patrol's communications system.

Our Patrol is young when compared to the older state law enforcement agencies. It was 20 last November 1. However, even in its infancy of less than one year old the need of communicating with its few and widely scattered troopers was realized.

### AM Receivers Came First

An attempt to overcome this need was made by installing AM radio receivers in various of the widely scattered troopers' cars, on the radio frequencies of local progressive city police departments. As old timers know, in 1940 progressive police departments with radio transmitters were as scarce as hen's teeth—at least they were in Florida!

The success of this type of communications was almost nil. The troopers "lucky" enough to have a receiver in their cars had to patrol within the city limits to be able to read the PD station. This was of little help on the thousands of miles of unpatrolled roads of this growing state.

This was the status of communications until 1943 when six FM stations were built in strategic locations throughout the state.

Due to the very heavy traffic caused by Camp Blanding, World War II military installation, one of these stations was located at the FHP barracks at the camp. Others were at Bartow, Ocala, Fort Meyers, Fort Lauderdale, and at headquarters in Tallahassee.

### Personnel Shortage

There was one technician employed at this time, and operating personnel consisted of the secretaries of the various stations during the day and troopers on the night shift. It was not unusual for a trooper to be manning a station and still be the only officer on duty in a big area. If an accident call came in, he signed the station off the air, went to the wreck, and then returned to the station after clearing up the Signal 4.

Near the end of World War II and immediately thereafter the radio system was

enlarged to 18 FHP stations with two sheriffs' departments operating on the FHP frequency. All these were also connected by Bell teletype machines, as well as to all stations covered by that system. No station during this period operated 24 hours a day. All closed down at midnight.

Our neighboring states of Alabama and Georgia were also included in the radio network (at Dothan and Albany) by an exchange of receivers.

Most equipment still in use in 1950 was of early 1943-44 type and was fast becoming outmoded. Also, the Federal Communications Commission was ordering a change of frequencies. This, therefore, was an ideal time to purchase complete new equipment with the latest electronic improvements.

**Radio Telegraph Added**

The rags of our early history now began to turn to better cloth with lace trimming. In 1953 there was added a radio telegraph station to help with our interstate message load and—the laciest lace of all—a closed circuit Western Union teletype system connecting 13 of the main patrol stations was put into operation.

The state legislature granted additional manpower to the Patrol, and of course this adds to the communications needs and problems. In the past four years great progress has been made.

Now some 500 patrol officers, examiners, and technicians operate on the radio network, in addition to numerous sheriffs' departments, FBI agents, the State Beverage Department, State Bureau of Narcotics, U. S. Border Patrol, and other law enforcement agencies.

All major stations also are equipped with transmitters and receivers on the frequency of 155.37 mc, the so-called Civil Defense frequency of this state. This gives the Patrol and other agencies who use this frequency communications in times of disaster or Civil Defense exercises or needs.

A new emergency vehicle also has been put into use. It can move quickly to any area in the state to become a mobile headquarters for all agencies through its multiple frequency transmitters and receivers.

The greatest single advance in communications, and the final act in the rags to riches theme, came in late 1955 when the teletype system was enlarged to take in all FHP stations and also a large number of sheriffs' departments, the Motor Vehicle Commission, and the state prison at Raiford. The system also was extended to Mobile, Ala., with a connection in the Mobile Police Department, which has ties with the Alabama Highway Patrol and a radio telegraph station for CW messages. There are a total of 48 different outlets on this closed circuit teletype system. It has proved a boon to all in the transmission of criminal and administrative messages. Well over 30,000 messages a month are handled, each of which may go to one or all 48 stations at the push of a button. So, in effect, these 30,000 separate messages become many, many times that number of written communications at their final destination.

**New Building Completed**

During 1958 a new communications building was completed in Tallahassee. It houses the parts stock maintained by the Patrol for technicians, as well as the repair and maintenance shop for GHQ and Troop H of the Patrol.

Remote controlled transmitters are used in isolated areas.

Size of the Communications Section has grown from the one technician to eight and a chief radio engineer, from no full-time operators to at least three in every station, and in many there are four. In all, there are well over a hundred radio operators. They are uniformed, and their salaries are set by the legislature in the same manner as Florida Highway Patrol troopers.

This far-flung radio and teletype network assures the citizens of Florida and our millions of visitors prompt and efficient service, whether it be a call for a tire repair or gasoline for a stranded motorist, or a call for help and assistance when disaster strikes.

We're determined to keep our communications system "rich." ★

## EVALUATING . . .

*(Continued from page 6)*

between the rank order of accident-related violations and the rank order of the activities of each patrolman provides an absolute, not a relative, criterion reflecting the performance of each man. One man's performance is not pitted against another's — every man's performance is compared with the standard. This procedure also takes into account the fact that the men in the Colorado State Patrol (as in most Pacific Coast, Western, and Plains States) cover widely differing kinds of territory — a difference which results in differential opportunity for enforcing the law. Differential opportunity is taken into account by the fact that it is not the *amount* of work that is being considered, but the *rank order* of the various activities of the officer. It is the effectiveness of his activity which is being quantified.

In an effort to discover further information about this procedure, the records of 20 patrolmen were examined.[2] It was discovered that the performance of these men in the six-to 18-month period on the patrol correlated +.35 with performance in the 18-to 30-month period. (The period of the first six months was omitted because this is essentially a "breaking-in" period.)

In short, this form of performance was somewhat stable over a given time for these men, but not satisfactorily so. (Yet in view of the coarse group of violations and activities into categories, this correlation is quite promising.) More information is needed on this point. It is interesting to note that a measure of quantity, or *volume of work*, in these same two periods is much more stable over time — the correlation between the two 12-month periods being +.61. And the correlations between merit ratings at six-month intervals during the 24-month period are also stable over time — the average correlations being +.56. (The matrix of the merit-rating correlations is presented in Table 1.)

**Table 1**

Correlations Among Merit Ratings Made at Six-Month Intervals

| | 2nd MR* Period | 3rd MR* Period | 4th MR* Period |
|---|---|---|---|
| 1st MR* Period | .33 | .47 | .27 |
| 2nd MR* Period | | .84 | .74 |
| 3rd MR* Period | | | .74 |

*MR = Merit Rating

Quality of performance (as measured by the procedure described above) correlated with quantity −.04 in the first 12-month period (after the first six months), and the correlation between quality and quantity in the second period was +.02. Clearly, quality and quantity are independent measures of performance. The man who is doing the *most* work is not the man who is doing the *best* work.

The first merit rating was related to quantity (r = +.45) but not to quality (r = +.12). Thereafter, there is no relationship indicated between merit ratings and either quantity or quality of the patrolman's activities. All three measures are independent of one another. The reason for this certainly deserves investigation, for it raises the serious question of what merit ratings are based on.

It should be mentioned that a series of selection tests which included interviews, objective personality and interest tests, intellect tests, observation and recall tests, and a field stress test were administered to these patrolmen as candidates for the position. Few correlations of predictive utility were found with respect to quality, quantity, merit ratings or longevity for either the first or second 12-month period of service. The only encouraging correlations found were those between quality of performance in the first 12-month period and ratings of behavior in the stress test (made by graduate student observers, but *not* by graduate student role players in the stress test, professional psychologists and psychiatrists, or state

[2]The records of these 20 men were used because the men were in the patrol in a prior selection program. Thus, selection test data could be analyzed with respect to this criterion.

patrolmen from a neighboring state, or city police officers). Also encouraging were correlations between quality of performance in the first 12-month period and ratings from an interview.

These (in the main) disappointing results must be evaluated in light of the fact that the quality criterion was developed *after* the tests were developed. Future attempts to develop a selection program should be explicitly directed toward the prediction of this criterion.

Can anything be said about the nature of this qualitive criterion which would suggest the kind of tests which might be used to predict it? Yes. When one considers the type of performance required by each category of accident-related violation, it becomes apparent that detecting and apprehending those who violate the law in ways which are highly related to accidents is a far more difficult task than detecting and apprehending those who violate the law in ways which are not accident-related. Detection of speeding, improper turning, etc., present much more difficult problems for the patrolman than do such matters as improper parking or failure to heed a stop sign.

Contrast the performance required to detect and apprehend violators who are speeding, improperly turning, or improperly taking the right-of-way from another vehicle with that required to detect and apprehend an improperly parked vehicle, or with that of inspecting a truck for improper loading. The former category clearly presents problems which call for skill, courage, and judgment whereas the latter does not. Moreover, not only are the critical violations more difficult to cope with on the highway, but they are much more likely to require the patrolman to appear in court, where he must make his case against the accused and his attorney as well, thus testing the patrolman's skill, courage, and judgment once more. And it may well have been the courage and judgment displayed by the candidate in the stress situation which impressed the raters in the stress test and led to a positive correlation between these ratings and quality of performance. And it may well have been the judgment, or perhaps even "wisdom," of the candidate which impressed the interviewers and produced a positive relation between these ratings and quality of performance. But this is mere conjecture. Only further research over long time periods will provide the answer. However, if law enforcement is, in fact, related to accident prevention, the answer is badly needed. ★

## Travelers Publishes Accident Fact Book

There were 900 more deaths and more than 50,000 additional injuries on U.S. highways in 1959 than was the case in 1958, according to statistics compiled by The Travelers Insurance Companies.

Fatalities climbed to 37,600 and more than 2,870,000 were injured as a result of automobile accidents. The figures were released by Travelers in its annual highway safety booklet, entitled this year, "The Dishonor Roll." It was reported that more than 3,000,000 copies of the booklet are being distributed throughout the country.

In the report it was stated that more than 62,000,000 men, women and children have been killed or injured by automobiles since they first appeared on the scene. More have died on the highways than on our nation's battlefields. More have been injured than in all the world's wars combined.

By far the single biggest cause of accidents resulting in death or injury was speed. More than 43.1 percent of the deaths and 38.8 percent of the injuries were blamed on speed, according to Travelers. Second biggest killer was the driver on the wrong side of the road who was blamed for 15.9 percent of the deaths.

Although making up less than 14 percent of the driving population, drivers under 25 years of age were involved in nearly 29 percent of the fatal accidents. (*Traffic Digest and Review* subscribers may obtain a copy of this booklet by sending a post card to: "TD&R Bonus, Traffic Institute, 1804 Hinman Ave., Evanston, Ill.)

## ENGINEERING . . .

*(Continued from page 10)*

are allowing the establishment of speed regulations on the basis of engineering studies. Thus within a broad range established by law, the engineer is able to select specific limits for individual highways or sections of highway that conform to the physical limitations or the capabilities of the highway itself.

A technique in speed control that has not yet gained the acceptance it deserves is the establishment of minimum as well as maximum limits. As was previously mentioned, peak speeds are rising far more rapidly than average speeds. This means that the spread between high and low speed is continually widening. And as the range between high and low speeds increases, more and more passing maneuvers become necessary, with the hazard of head-on and rear-end collisions.

**Minimum Limits**

In view of this situation, some cities are establishing minimum limits approximately 10 miles an hour below the maximum limits on their primary streets or boulevards. In rural areas, minimum limits are beginning to appear on major freeways and toll roads. The more widespread use of minimum limits is a measure recommended for a consideration. The final trend in speed regulation appears to be the growing use of maximum or absolute limits established at a somewhat higher numerical level than the previously applied prima facie limits.

How adequate is the program of traffic operation on the rural highway system? Generally speaking, on the state level, the work is good. State highway departments have established a traffic engineering division that is applying the recommended uniform and standard control measures. This is not to say that no further improvements can be made in state highway traffic programs; with changes in land use and growth in the use of the automobile, the task is never-ending.

On the secondary road system the program generally leaves much to be desired. With the exception of a few metropolitan counties and the states where the secondary road system comes under the jurisdiction of the state highway department, traffic engineering on the secondary road system is distinctly mediocre. Rarely are there engineers trained in the techniques of accident analysis, traffic control, and traffic design. The need possibly is most critical around the fringes of established cities where satellite communities are rapidly growing, often unincorporated as yet. Though there are a few areas where the task of traffic operation is being handled on a county-wide or metropolitan basis, for the most part there is no one able to deal with problems of accidents and transportation in these suburban fringes.

**Upgrade Rural System**

As is true of the city street system, there is much that can be done to upgrade the safety and usefulness of the rural highway system through relatively simple construction measures. Pavements can be widened within existing rights-of-way. Dividing medians can be provided to minimize the risk of head-on collisions and to restrict movements into and out of abutting property. At intersections, the pavement can be widened and left-turn slots provided to tremendously enhance the capacity, efficiency, and safety of these points of hazard. Increasingly, signals, especially of the actuated type, can regulate movement at busy intersections. Extra pavement can be built to accommodate the slower moving vehicles going up hills. Narrow bridges and other structures can be widened. Sight distances can be improved by rebuilding sharp curves and blind hills. Winding roads of poor alignment can be rebuilt on new locations. In some instances, additional right-of-way can be acquired to permit the construction of frontage roads, thus insulating the high speed through lanes from the interferences generated by activity on abutting lands.

The field of modernization of the existing rural highway system is one that will demand increasing attention in the years ahead. An example of the extent of

need can be found in a study made by one of the states that is very progressive in the highway field. This state has 12,500 miles of highway under its jurisdiction. It finds that within the next 15 years it will be necessary to widen, improve or substantially rebuild 9,500 miles, while 900 miles will require replacement on entirely new alignments.

Many an engineer, as he has struggled to produce a good transportation system from an existing network of urban streets or rural highways, has said to himself, "If I could only start from scratch and rebuild everything as it ought to be, I could produce a highway system that could handle traffic movement expeditiously and safely."

**Opportunity Available**

In this period of rapid population growth and accelerated highway development and even the re-development and rebuilding of the older sections of cities, the engineer has such an opportunity. In fact, from the viewpoint of traffic safety, the task of planning and designing now for the future is of utmost importance. If we do this job well today, we will make a contribution of most enduring value to a safer system of highway transportation. Therefore, a vital element in the day's traffic safety program must be planning for the future.

The need for planning today is unusually great because of the period of tremendous growth and expansion this country now is undergoing. As is well known, the postwar "marriage boom" and the ensuing trend toward larger families is producing an expanding population that will continue for at least another generation. Specifically, the demographers now are predicting that the national population, which now stands at 174 million, will grow to approximately 221 million by 1975. So this prospect of growth itself imposes an obligation that an adequate highway system be planned now to care for the needs of the next generation.

To a great extent, the new population will be concentrated in urban areas, complicating the already complex urban transportation problem. This metropolitan growth will take the form of extensions of residential, industrial, and commercial developments into suburban or rural fringes.

To a great extent, these widely dispersed developments will be in locations where movement will of necessity be primarily by motor vehicle. Thus, not only will more people be demanding transportation, but also, these dispersed metropolitan communities will be generating an increasingly complex criss-cross of travel which largely must be served by the automobile and truck.

As this growth and development occurs there is a coincidental revolution in transportation. Short-haul transportation between cities increasingly is being handled by the motor vehicle as travel by rail diminishes. For longer distances, plane travel is assuming increasing importance.

Within urban areas, public transportation, such as the bus and street car lines, has been handling a steadily decreasing proportion of the daily travel. The point has been reached where, one by one, public transportation lines have disappeared in some of the medium-size and smaller cities. In the larger metropolitan areas where some form of rapid transit—subway, elevated or express bus—is economically feasible, patronage continues at a level high enough to assure that these vital forms of local transportation will continue.

**Technological Break-through**

But in making a broad appraisal of the magnitude of the traffic problem ahead, it is necessary to recognize that until there is a major technological break-through producing new forms of mass transportation, dependence upon the private automobile will continue to increase. Considering all factors—population growth, dispersed metropolitan development, and the shift from public to private transportation—it now appears that the amount of travel by motor vehicle will increase by approximately 60 per cent by 1971.

In view of this prospective expansion in highway transportation, it is proper to wonder whether the current acceleration in highway building, resulting from greatly expanded federal aid, will be sufficient to satisfy the anticipated highway

need. As far as can be seen now, no more than 20 or 25 per cent of highway traffic 15 years from now will be found on the interstate freeways and the urban expressways. Three-fourths to four-fifths of all traffic circulation will take place on the existing street and highway networks. Thus there is much more to be done to modernize, replace, and extend existing street and highway systems.

In the preceding discussion an effort has been made to appraise the adequacy of the current engineering action for traffic safety. This evaluation necessarily was in broad terms. At this point, it would be well to emphasize some of the more specific needs now evident in the engineering field.

**Need Agencies**

The first item demanding attention is the creation in government of agencies adequately staffed to handle the engineering phase of this problem. During the past 10 years city, county, and state governments have been seriously handicapped in their efforts to develop competent engineering staffs because there were not enough engineers trained in the highway-traffic field available for employment.

Today this deficiency is being corrected, as more and more educational institutions are adding highway and traffic engineering courses to their curricula. Today there are at least 15 universities and colleges offering accredited courses in traffic engineering at the undergraduate level; 33 are offering advanced work in their graduate courses. In addition, a growing number of institutions are developing short training courses intended for the betterment of engineers now employed in this field.

This in-service training is of particular importance to the smaller city and the county governments which do not now have on their staff engineers specially trained in the highway-traffic field. These short courses allow such governmental agencies to select one of their present staff engineers to receive intense training in one-, two-, or three-week courses. If these governmental agencies would take advantage of the training opportunities now available, they could make genuine progress in dealing with their local problems of traffic accidents and congestion.

A second area of great need is for the development of agencies able to act on a metropolitan basis in many rapidly expanding urban communities. In some states there is a need for an efficient highway engineering agency at a level higher than the city, but lower than the state highway department. It would be the responsibility of such an agency to handle problems of highway planning, design, and construction outside the central city, but within the rapidly growing suburban fringe where in far too many instances there is no integrated program of highway development.

In some metropolitan areas, the need for engineering attention to accidents and traffic management is being met through the creation of a traffic engineering agency at the county level. The exact form of metropolitan development will vary from state to state and from one metropolitan area to another in accordance with their particular situation, but this is a field of activity requiring serious study and action.

**Focus on Urban Areas**

In discussing the form which future growth will take, it was noted that, from here on, the highway transportation problem increasingly will be focused in the larger urban areas. This then means that these cities will face an increasing pressure for more adequate and safer highway facilities. This means money. Yet today, a great many cities face a critical dilemma as they seek ways to finance improvements to take care of the needs that already exist.

Many are prevented by law from securing funds through local taxation upon the motor vehicle. When the cities try to turn to general taxation as a means of finance, the property owners balk. Most serious study should be devoted to measures that will enable cities and their suburbs to finance and build the highway transportation system they require. As urban communities expand farther and farther into the surrounding rural areas, there increas-

ingly is a need for rural and suburban land planning. With the guidance of proper planners, the new parts of cities could be designed so as to incorporate the maximum safety and efficiency. Without this guidance, many of the new areas are perpetuating the mistakes made in the older communities many years ago.

The last specific offered for consideration is the need for more widespread control over the access to highways from abutting property. Only when rigid control over access is exercised will it be possible to preserve the investment in the highway system, and at the same time to create a type of highway that has the maximum of built-in safety features. This control of access probably should be possible on existing as well as new highways, and to urban streets as well as rural highways.

To summarize the role of the engineer in traffic safety, it is clear that the engineer is making, and can make still greater, contributions to traffic safety. Evidence of this is found in the accomplishments of the traffic engineers and highway engineers throughout the country. It can be seen in city traffic engineering programs and in the excellent accident records of the modern skillfully designed freeway. Yet no engineer would presume to be able to produce the optimum accident reduction through engineering works alone. He can plan and build highway systems that incorporate the maximum practicable safety features, but the record of accidents will depend to an important extent on the behavior of the drivers and pedestrians who use these facilities. Thus the safe and proper use of engineering works depends upon adequate programs of education and enforcement. ★


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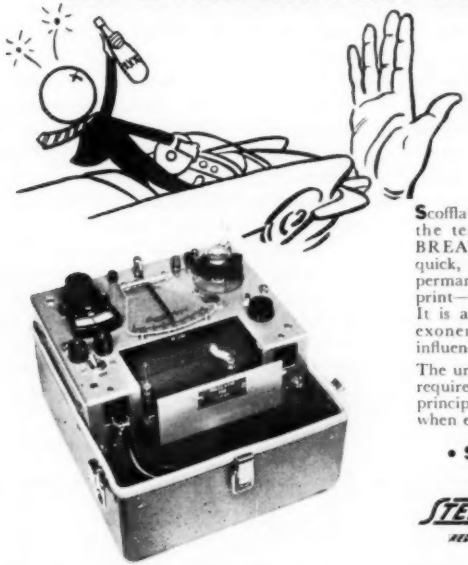

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KNOW THE LAW

# RIGHT TO FORCIBLY ENTER BUILDING TO MAKE ARREST

**BY ROBERT L. DONIGAN, General Counsel and EDWARD C. FISHER, Associate Counsel The Traffic Institute**

THROUGH THE CENTURIES during which our laws of arrest have been evolving, it sometimes seems they have undergone no changes whatsoever. While it is true that much of our present day arrest authority stems from ancient times, it is well to recognize that modern times and changing conditions have brought some progress. The step from the hue and cry to the Uniform Arrest Act now in effect in a few states[1] is a commendable advance. Still the bulk of our arrest laws closely follow those rules of custom and usage for which we must look back to the old English common law. Most of our modern statutes merely restate those ancient rules, with here and there a cautious step toward present day conditions which affect law enforcement.

One of the questions frequently encountered in this field relates to the authority of law enforcement officers to break into dwellings and other buildings in order to consummate an arrest which the law gives them authority to make. Does the fact that the wanted person is inside a building, or his home, furnish him a safe refuge against the officer who has lawful authority to arrest him? Suppose he takes cover inside the dwelling house of another person? Suppose the offense for which the arrest is sought is only a misdemeanor? In such instances as these is the officer's only recourse to procure a warrant in order to rout the offender out of his haven?

Much of the uncertainty along this line stems from the familiar adage that "a man's home is his castle." The protection of the home against uninvited entry grew from this ancient English principle of liberty, but even then, it did not prevail against the right of the king or his officers to arrest for criminal offenses. Even in those days the principle had its corollary that "no man can have a castle against the king,"[2] and this rule prevails today, substituting the power of the state for that of the king.[3]

As expressed by one of the old English judges:

> "In all cases when the King is party, the sheriff (if the doors be not open) may break the party's house, either to arrest him, or to do other execution of the King's process, if otherwise he cannot enter. But before he breaks it, he ought to signify the cause of his coming, and to make request to open doors."[4]

And as expressed in one of our modern cases:

> "Since Magna Charta a man's home has been his castle, but a castle gate is no bar to lawful authority. It is lawful for an officer in fresh pursuit of an escaping criminal even to force the door of a stranger, if the officer has reason to believe the criminal is within."[5]

1. Delaware, New Hampshire and Rhode Island.
2. Perkins, Cases and Materials on Criminal Law and Procedure, Ch. 11, p. 718; Voorhees on Arrest (2nd Ed.), sec. 160, and this rule prevails today, substituting the power of the state for that of the king.
3. 4 Am. Jur., Arrest, sec. 82; State v. Shook, 224 N.C. 728, 32 S.E. 2d 329 (1944).
4. Semayne's Case, 5 Coke 91, 77 Engl. Repr. 194, 11 Engl. Rul. Cas. 629 (1604), quoted in note: 5 ALR p. 264.
5. City of Buckhannon ex rel Cockerill v. Reppert, 118 W. Va. 10, 188 S.E. 870 (1936). See infra, nn. 27-29.

The right of forcible entry by an officer of the law has long been established in cases of arrest for felony[6] and also in cases of arrest under a warrant,[7] but the authority of private persons in this respect was not so broad. They were privileged to break doors to make an arrest only for felony committed in their presence, the distinction being based on the fact that an arrest by a private person was merely permissible, while an arrest by an officer of the law is a mandatory one which he must perform.[8]

In addition to a peace officer's right of entry incident to making an arrest for felony, there is a well recognized rule that he may likewise enter private buildings for the purpose of arresting for, or preventing, a misdemeanor constituting a breach of the peace, as in the case of a fight or other public disturbance taking place inside the place.[9] Thus in an 1897 Wisconsin case,[10] the city marshal of Superior, Wisconsin, and several of his officers heard loud, profane and indecent noises coming from a house occupied by one Hawkins. They entered the house and arrested the inmates for violation of a disorderly house ordinance. In a false imprisonment suit against the marshal and his officers it was held they acted within their legal authority in what they did, even though Hawkins was acquitted in municipal court on the disorderly house charge. In so holding the Wisconsin Supreme Court said:

> "The term 'disorderly house' denotes a house or other like place in which people abide, or to which they resort, disturbing the repose of the neighborhood, violating public order and tranquility."

"It is argued that the arrest of the plaintiff without a warrant was illegal, and cannot be justified. The defendants, by virtue of their offices, were conservators of the public peace, and had a right at common law to arrest all persons who were guilty of a breach of the peace, or other violation of the criminal laws, in their presence; but in all such cases the arrest must be made at the time of the offense, or immediately after its commission. The provisions of the ordinance pleaded in that behalf are substantially to the same effect, and authorized a summary arrest of any one in the act of violating any of the general laws, or any ordinances of the city passed in accordance therewith. . . . A disturbance and violation of public order is a breach of the peace. . . . The evidence tends to show that the alleged violation of the ordinance may fairly be said to have been committed in the presence of the defendants. They had heard the disturbance and disorderly conduct from the outside of the house, and the evidence tends to show that they had been summoned there, or their attention had been attracted to it. The chief of police arrived in time to become aware of the conduct in progress within, and, acting in apparent good faith, and on what appeared to be reasonable ground, ordered the house to be 'pulled.' . . . The authority of conservators of the public peace to make arrests in such cases should be liberally construed and upheld, but always at the risk that they will be liable if it be misused or abused."

The scope of the rule has been ex-

6. 4 Am. Jur., Arrest, sec. 84; note: 16 LRA 500; 61 am. Dec. 156; State v. Shook, 224 N.C. 728, 32 S.E. 2d 329 (1944); Smith v. Tate, 143 Tenn. 268, 227 S.W. 1026 (1921); Commonwealth v. Phelps, 209 Mass. 396, 95 N.E. 868, 873 (1911).
7. 4 Am. Jur., Arrest, sec. 83.
8. Perkins, Cases and Materials on Criminal Law and Procedure, Ch. 11, p. 719; Voorhees on Arrest (2nd Ed.) sec. 163; Brooks v. Commonwealth, 61 Pa. 352 (1869); 4 Blackstone's Commentaries on the Common Law, 293; 4 Am. Jur., Arrest, sec. 82.
9. *Ariz.* Faber v. State, 62 Ariz. 16, 152 P.2d 671 (1944).
   *Cal.* People v. Cahill, 163 Cal.App. 2d 15, 328 P.2d 995, 998 (1958).
   *Del.* State v. Mills, 6 Pen. 497, 69 A. 841 (1908).
   *Hawaii* Hubertston v. Cole, 1 Hawaii 44 (1851).
   *La.* Stoehr v. Payne, 132 La. 213, 61 So. 206, 44 LRA (NS) 604 (1913).
   *Mass.* Ford v. Breen, 173 Mass. 52, 53 N.E. 136 (1899); Commonwealth v. Tobin, 108 Mass. 426, 11 Am. Rep. 375 (1871).
   *Mo.* State v. Turner, 302 Mo. 660, 259 S.W. 427 (1924).
   *N.C.* State v. Wray, 217 N.C. 167, 7 S.E.2d 468 (1940).
   *Okla.* Duffey v. State, 79 Okla. Cr. 218, 153 P.2d 629, 631 (1944).
   *Wis.* Hawkins v. Lutton, 95 Wis. 492, 70 N.W. 483 (1897).
10. Hawkins v. Lutton, supra.

tended to other misdemeanors also. For instance, the right of entry has been upheld where officers of the law look through a window and observe a crap game in progress inside a house,[11] and where officers standing outside an open window heard the sexual offense of *fellatio* being committed by two men inside the house. The officers entered and arrested the two, and in affiirming their convictions the Supreme Court of Arizona said:

> ". . . realizing from listening on the outside, just four or five feet from them, what was going on, the officers were enabled, through the sense of hearing, to know that a crime was being committed in their presence, and this gave them a right to enter the house and arrest the participants without either warrant of arrest or a search warrant. Hence the arrest was perfectly lawful and violated neither the state or federal Constitution and the evidence given by the officers was properly admitted."[12]

However, in keeping with the general rule that an officer has no authority to arrest without a warrant for a misdemeanor not committed in his presence, it naturally follows that there is no authority to break into a building on mere suspicion that a misdemeanor is being committed therein. He must have knowledge through his own senses that an offense is being committed, as where he sees or hears the offense in progress.[13] This is to say the officer has no right to enter for the mere purpose of discovering whether a misdemeanor is being committed in the house, or of arresting one merely suspected of having committed a misdemeanor. In such cases an officer who forcibly enters a house on such an exploratory mission without a search warrant is a trespasser regardless of what he may find after such entry.[14]

**Right to Force Entry Depends Upon Authority to Arrest**

While in many cases dealing with this subject the officer held a warrant of arrest, or sought to arrest for felony or for some breach of the peace committed in his presence, it must be remembered that the authority to arrest was generally limited to such cases at common law. It has been pointed out by eminent authority in this field that a warrant of arrest is of no particular significance in connection with the right to enter a building to arrest an offender. The authority to arrest carries with it certain incidents, including the right of search and the right to force entry into buildings in order to make the arrest authority effective. So, whether the arrest be under warrant or without a warrant, where the authority exists, an arrest in either case is made on behalf of the state by authority of law and on behalf of the public welfare. The power to make arrests, with its accompanying incidents, stems from authority conferred by law, not necessarily from a warrant or other process issued by a court or magistrate.[15] In other words, the officer's right to break and enter to effect an arrest usually is held to be *coextensive with the arrest authority itself.*[16]

Thus the language of the early cases, to the effect that the right to enter buildings to arrest for a breach of the peace was recognized, merely reflects the common law limitation on arrest authority which was usually confined to such offenses of the misdemeanor class as amounted to breaches of the peace. The authority to break and enter followed as an incident of the power to arrest in such cases.[17] The modern rule extends the authority to all types of misdemeanors.

Of course the authority to arrest must exist, otherwise there is no right of entry. In offenses of the misdemeanor class in most states, there usually is no authority

11. State v. Turner, 302 Mo. 660, 259 S.W. 427 (1924).
12. Faber v. State, supra, n. 9.
13. Adair v. Williams, 24 Ariz. 422, 210 P. 853, 26 ALR 278 (1922); Bailey v. Ragatz, 50 Wis. 554, 7 N.W. 564 (1880).
14. Hart v. State, 195 Ind. 384, 145 N.E. 492 (1924).
15. 1 Bishop, New Criminal Procedure, (2nd Ed. - 1913), secs. 194, 196, 197, 203.
16. Perkins, Cases and Materials on Criminal Law and Procedure, Ch. 11, p. 718, n. 6.
17. Notes: 8 LRA 533, 16 LRA 500.

to arrest unless they are committed in the presence of the officer, and the arrest must be made on the spot or in fresh pursuit. In felony cases the common law rule still obtains in most jurisdictions—an arrest may be made upon reasonable ground to believe the person to be arrested has committed a felony. In a few jurisdictions the distinction in this respect between felony and misdemeanor arrests has in effect been abolished.[18]

The modern rule has been well stated by the Supreme Court of Mississippi in 1919:

> "In order to make the arrest of a person charged with crime, an officer has authority to enter and search any dwelling house, when he acts upon probable cause and reasonable belief that the party whom he seeks to arrest is then in such dwelling house.
>
> "Such officer, in seeking to arrest one charged with crime, whose arrest he is legally authorized to make, may enter and search the dwelling house of the accused, or the dwelling house of any other person, when acting in good faith upon reasonable belief that the accused is in the house, and this is true whether the owner or possessor dwelling in the house consents or not; and when search by an officer is made in a reasonably necessary manner under these circumstances for the purpose only of apprehending the person whose arrest he seeks, the officer violates no right or law and is not liable for damages, and is not required to have a search warrant under our statute. . . . Such reasonable search in the due enforcement of the criminal laws of the land is not an invasion of the personal security of the citizen.
>
> "Petty officers who commit acts in excess of their lawful authority are amenable to the law in such cases, but the arrest of harbored criminals is not to be hindered under the claim of personal security against unreasonable search."[19]

An example of flagrant abuse of such authority occurred in a Kentucky case where an officer set fire to a building in order to smoke out its occupants so he could arrest them.[20]

**Demand for Admittance and Refusal**

Before forcing an entry into a dwelling for the purpose of arresting someone inside, as a general rule the officer must first disclose to the inmates his purpose to arrest someone inside, and his demand for admittance must be refused. Unless this is done a break-in by the officer would be a trespass in the absence of special circumstances excusing such preliminaries.[21] This has been held especially necessary in misdemeanor cases, in which the necessity for intervention of the law has been regarded as being somewhat less urgent than in felony, since the delay incident to compliance with notice, demand and refusal might enable the felon to escape. It has been held that the name of the person sought to be arrested need not be stated unless requested.[22]

Excuses for noncompliance with the preliminary request and refusal are usually found in one of three major categories: (1) cases in which to do so might imperil the personal safety of the officer; (2) those in which the incidental delay might defeat the arrest by permitting the offender to escape; or (3) permit him time to destroy the evidence. Such exceptions are based upon just and reasonable grounds and the legality of an arrest is not affected by forcible entry without such preliminaries when these circumstances exist.[23] This is true even when the

18. Connecticut, Georgia, Illinois, Iowa, Missouri (distinction eliminated only as to Kansas City and St. Louis), Wisconsin. Authority to arrest on reasonable ground to believe misdemeanor has been committed in automobile accident is conferred in Idaho, New Mexico and Virginia.
19. Monette v. Toney, 119 Miss. 846, 81 So. 593, 5 ALR 261 (1919). To same effect see note: 8 LRA 533; Perkins, Cases and Materials on Criminal Law and Procedure, Ch. 11, p. 719, nn. 9-10; Noble v. State, 44 Okla. Cr. 214, 280 P. 476 (1929).
20. American Cent. Ins. Co. v. Stearns Lumber Co., 145 Ky. 255, 140 S.W. 148, 36 LRA (N.S.) 566, Ann. Cas. 1913B 628 (1911).
21. 5 Corpus Juris, Arrest, sec. 67; 4 Am. Jur., Arrest, sec. 85; Voorhees on Arrest (2nd Ed.), sec. 167; notes: 8 LRA 533, 16 LRA 502; 61 Am. Dec. 157-159.
22. Voorhees on Arrest (2nd Ed.), sec. 162; Commonwealth v. Reynolds, 120 Mass. 190, 21 Am. Rep. 510 (1876).
23. Read v. Case, 4 Conn. 166, 10 Am. Dec. 110 (1822).

statute requires preliminary notice, demand and refusal as in California.[24] On this point the California District Court of Appeal has said:

> " 'Suspects have no constitutional right to destroy or dispose of evidence and no basic constitutional guarantees are violated because an officer succeeds in getting to a place where he is entitled to be more quickly than he would had he complied with Sec. 844. *Moreover since the demand and explanation requirements of Sec. 844 are a codification of the common law, they may reasonably be interpreted as limited by the common law rule that compliance is not required if the officer's peril would have been increased or the arrest frustrated had he demanded entrance and stated his purpose.*' " (Emphasis added by the court.) [25]

In fact the California courts have seemed inclined to minimize the importance of these statutory requirements, for in a more recent case the District Court of Appeal said:

> "The officer in this case clearly had a right to enter the apartment for the purpose of arresting the appellant and there would seem to be no compelling need under the circumstances to adhere meticulously to the provisions of the code section in question (844)." [26]

An officer is not a trespasser if he breaks and enters a house in good faith believing the person he seeks to arrest is therein, even if it dvelops upon search that he is not there.[27]

**Arrest of Person in House Belonging to Another Person**

Under a statute conferring upon officers the right to forcibly enter the dwelling of the person sought to be arrested, it has been held that his "dwelling" is the house inhabited by him, the one in which he lives, even though it is owned by someone else, or is occupied by several others at the same time. As the Kentucky Court of Appeals said in an early case:

> ". . . to assume that the law limited the officer's right to break, enter and search . . . to a house in which the criminal or offender exclusively dwelt, or which belonged to him alone, would be giving to the law a construction much too narrow and limited, because thereby criminals and offenders who owned not the house they inhabited, but dwelt in the house of another, and at the same time inhabited by others, would thus be furnished with more facilities for escape and more opportunities to avoid arrest than others owning or exclusively inhabiting the dwelling which they occupied, which would be contrary to the policy of the law, and not in accordance with its spirit and purpose, to-wit, the apprehension and punishment of all persons guilty of misdemeanors and felonies." [28]

Under the general rule an officer having reasonable cause to believe the person he seeks to arrest is in the house of another, after having complied with the preliminary requirements (when necessary), may break into the house by force for the purpose of making the arrest. In such cases he cannot be treated as a trespasser even though the person he seeks to arrest is not found in the house.[29] The law will not permit the householder to make his home a refuge for criminals, and if he refuses to admit the officer after proper notice and demand, he is considered to be harboring the criminal or conspiring with him.[30]

**Arrest of Persons in Enclosures Other Than Dwellings**

Examples of places other than dwelling houses into which an officer may lawfully force entry in order to make arrests are:

24. California Penal Code, sec. 844.
25. People v. Potter, 144 Cal.App.2d 350, 300 P.2d 889 (1956). See also: People v. Miller, 162 Cal.App.2d 96, 328 P.2d 506 (1958); People v. Maddox, 46 Cal.2d 301, 294 P.2d 6 (1956).
26. People v. Feeley, 3 Cal.Reptr. 529 (Cal.App.-1960).
27. Barnard v. Bartlett, 10 Cushing (Mass.) 501, 57 Am. Dec. 123 (1852); 4 Am. Jur., Arrest, sec. 83; Voorhees on Arrest (2nd Ed.) sec. 161.
28. Hawkins v. Commonwealth, 14 B. Monroe (Ky.) 395, 61 Am. Dec. 147 and note p. 156 (1854). See also: City of Buckhannon ex rel Cockerill v. Reppert, supra, n. 5.
29. Commonwealth v. Reynolds, 120 Mass. 190, 21 Am. Rep. 510 (1876). See 4 Am. Jur., Arrest, sec. 86. *Contra:* 61 Am. Dec. 156, Hawkins v. Commonwealth, supra, n. 28.
30. Voorhees on Arrest (2nd Ed.), sec. 164.

a Pullman berth in a train,[31] or a hotel room.[32] The scope of the rule logically can be extended also to private motor vehicles upon the highways or upon private property. Again, attention is directed to the fact that the officer must initially have the lawful authority to arrest.

Also, it seems obvious that no valid objection may be made to the entry of a public building or other public place in order to make an arrest. Thus it was held there was no unlawful entry into rooming house at the entrance of which a sign read "Public Telephone."[33]

**Right of Forcible Entry to Recapture Escaped Prisoner**

Where a prisoner under arrest for a misdemeanor escapes from the custody of the officer, the latter may, upon fresh pursuit, enter and search without a warrant any premises in which he has reasonable ground to believe the prisoner is hiding and for that purpose may, after due demand for admission and refusal, force an entry into the building or other premises in order to recapture his prisoner.[34] The right of entry in the event of escape in misdemeanor cases generally is limited to *fresh pursuit*, and does not exist where the trail is cold.

**Right to Object to Entry of Private Premises**

It is axiomatic that a person has no right to complain of violation of the constitutional rights of another person. Such rights are personal and may be waived only by the individual entitled to assert them. Thus where a Mississippi constable broke a window in a private dwelling, raised the shade and saw illegal gambling in progress, entered the house and arrested the gamblers, the owner of the house was the only one of the group entitled to assert the illegal entry and arrest. The others had no such standing and their convictions were affirmed. As the court said in so holding:

> "They had no right to complain of the evidence obtained against them by the illegal search of the premises of appellant Polk (the owner). In order for a defendant to avail himself of the constitutional provision against unlawful search and seizure, the search must invade his house or possessions and not the house or possessions of another."[35]

Stated otherwise, if a person takes refuge in the house of another person, the house is not *his* castle and he had no standing to object to the officer's entry.[36]

**Right to Break Inner Doors After Lawful Entry**

While the law does not permit the breaking of the outer door of a dwelling except under certain circumstances as herein discussed, this protection does not extend to a door inside the house unless it serves as the entrance to a distinct apartment. The right to break open the outer door in order to gain entrance necessarily includes the right to break open the doors of different rooms and chambers of the house in order to make an effective search for the wanted person.[37] However, each room in a lodging house or hotel is considered to be the dwelling of the individual occupying the room and the door thereof is considered an outer door as to him.[38]

As a corollary to the rule under which an officer may make forcible entry into a house, one who has lawfully entered for the purpose of making an arrest may also break out if he finds himself locked in.[39]

**Statutes Affecting Right of Entry to Make Arrest**

Modern statutes covering the right to break into buildings to make an arrest are

31. Burton v. New York Cent. & H.R.R. Co., 147 App. Div. 557, 132 N.Y.S. 628 (1911).
32. Tarwater v. State, 160 Tex. Cr. R. 59, 267 S.W.2d 410 (1954).
33. City of Evanston v. Hopkins, 330 Ill. App. 337, 71 N.E.2d 209 (1947) in which defendant was convicted of keeping a bawdy house upon evidence obtained by officers who entered the place and while there observed lewd acts in progress.
34. 4 Am. Jur., Arrest, sec. 87.
35. Polk v. State, 167 Miss. 506, 142 So. 480 (1932).
36. Voorhees on Arrest (2nd Ed.), sec. 164.
37. Note: 61 Am. Dec. 156.
38. Voorhees on Arrest (2nd Ed.), sec. 171.
39. Perkins, Cases and Materials on Criminal Law and Procedure, Ch. 11, p. 719, n. 13; 1 Bishop, New Criminal Procedure, (2nd Ed.—Underhill, 1913) secs. 196, 203.

largely declaratory of the common law. While there are some which seem to restrict the power within narrower limits, as Perkins says:

> "More frequently the statutory provisions codify what seems to be the common law on this point by according this privilege to the officer whenever he has lawful authority to arrest for crime, whether with or without a warrant, assuming this to be necessary after notice of authority and purpose and demand for admission."[40]

Thus most modern statutes make the right of entry coextensive with the authority to arrest. For example provisions such as the following are found in many states:

> "To make an arrest a private person, if the offense be a felony, and in all cases a peace officer, may break open the door or window of the house in which the person to be arrested is, or in which they have reasonable grounds for believing him to be, after having demanded admittance and explained the purpose for which admittance is sought."[41]

A few of the statutes limit the right to felony cases or those in which the officer is armed with a warrant.[42] Most of the statutes limit the right of entry of a private person to felony cases, and some restrict it to felonies committed in his presence.[43]

Following the liberal rule of the common law as to recapture of escaping prisoners, most statutes declare like authority, whether the pursuer be an officer or a private citizen. In this respect the California law is typical:

> "To retake the person escaping or rescued, the person pursuing may break open an inner or outer door or window of a dwelling house, if, after notice of his intention, he is refused admittance."[44]

Right to force entry in cases of recapture, of course, depends upon the legality of the original arrest.[45]

**Conclusion**

In those states which have codified the laws of arrest the matter of breaking and entering into dwellings and other buildings is necessarily governed thereby. But in those states whose legislative bodies have not made provision in this respect, the rules relating to right of entry must be found in the common law or in the decisions of courts. It is most important for each officer to be familiar with the law covering the matter in his own jurisdiction, and of course when time and opportunity are available, his good judgment will dictate the advisability of obtaining a warrant before doing violence to doors and windows of private buildings. ★

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40. Perkins, Cases and Materials on Criminal Law and Procedure, Ch. 11, p. 719, n. 16, listing the following states within this category: Alabama, Arkansas, California, Idaho, Iowa, Kentucky, Minnesota, Mississippi, Missouri, Montana, Nevada, New York, Oklahoma, Oregon, South Dakota, Tennessee, Utah and Washington. See also: 6 C.J.S., Arrest, sec. 14.
41. California Penal Code (1949), sec. 844; Rev. Montana Code (1947), sec. 94-6011; Nevada Comp. Laws (1929), sec. 10759. See also: Code of Alabama (1940), Title 15, sec. 155; Carroll's Ky. Codes, Russell's Rev. (1948), Ch. II, sec. 40; Minnesota Statutes Ann., sec. 629.34; Mississippi Code Ann., (1942), sec. 2471; Missouri Rev. Sts. (1949), sec. 544.200; 66 McKinney's Consolidated Laws of N. Y. Ann. Pt. 1, Criminal Code, sec. 178; Oklahoma Statutes (1951), Title 22, secs. 196, 197; Williams Tennessee Code Ann. (1934), sec. 11538, and others.
42. For examples see: Arizona Code Ann. (1939), sec. 44-132; Florida Statutes Ann. sec. 901.19(1); Georgia Code Ann., Ch. 27-2, sec. 27-205; Indiana—4 Burns Indiana Sts. Ann. sec. 9-1009; Louisiana Rev. Sts. (1950), sec. 15.72; North Dakota Rev. Code (1943), Ch. 29-06, sec. 29-0614; Texas—Vernon's Ann. Criminal Sts. of Texas, Code of Criminal Procedure, Art. 242, and others.
43. See 6 C.J.S., Arrest, sec. 14.
44. California Penal Code (1949), sec. 855. See also: 19 Am. Jur., Escape, Prison Breaking and Rescue, sec. 49, n. 19; 4 Am. Jur., Arrest, sec. 87, p. 61.
45. See note 34, supra.

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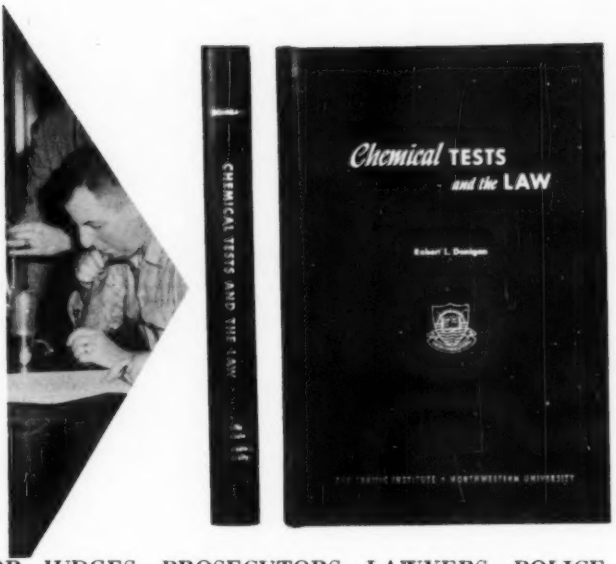


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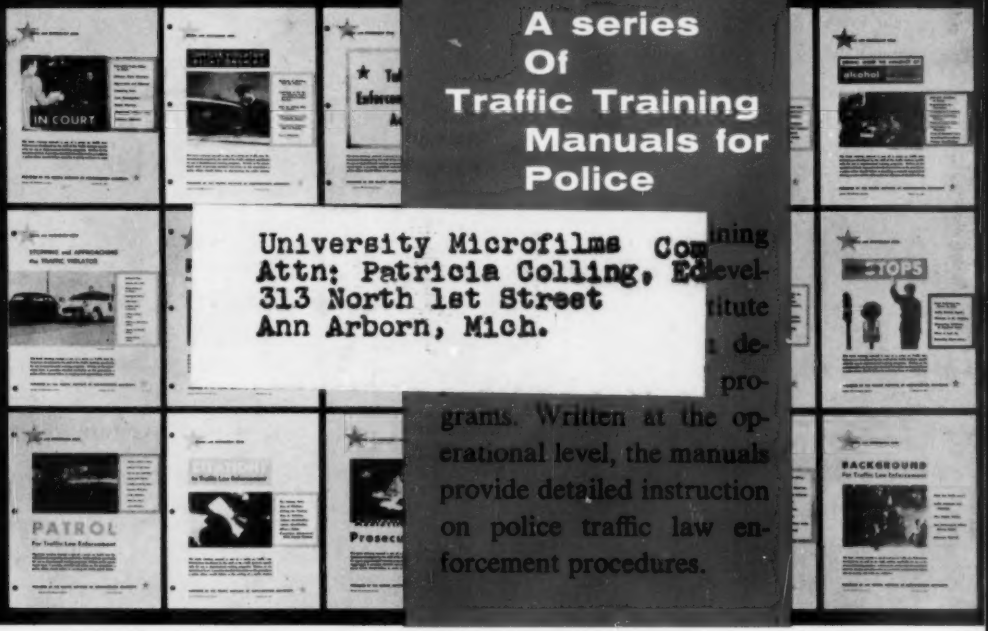


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